All Comments and Responses

Alana Wase

Board of County Commissioners Frederick County, MD

Bob Geiger and Catherine Buckler

Carroll County Department of Land Use, Planning, and Development

Consumer Energy Alliance

Dan Morrow

Elizabeth H. Singer

Energy Recovery Council

Environment Maryland Research & Policy Center

Katelyn Hasz

Liz Feighner

Mary Wolfe

Maryland Association of Counties

Maryland Association of Realtors

Maryland Conservation Council

Maryland State Builders Association

MD-National Capital Building Industry Association

National Association of Home Builders

Susan Jacobson

Commenter: Alana Wase

TO: Maryland Department of the Environment

FROM: Alana Wase

DATE: August 17, 2012

RE: Comments to the Maryland Greenhouse Gas Reductions Act Draft Plan

Dear Maryland Department of the Environment:

I want to first thank you for the opportunity to comment on our State's draft Greenhouse Gas Emissions Reduction Plan. I would also like to commend the effort that your agency in particular has expended to pull this plan together. I believe that the foundation that your agency has laid for accomplishing the 25% reductions by 2020 and more beyond, is excellent and appreciate your dedication to ensuring that the State reach its mandated reductions. As we each share a deep interest in the plan's success, I offer the following comments as additional opportunities to further ensure the integrity of the plan and its overall purpose.

1) The level of detail regarding each of the 65 programs must be significantly increased.

For a number of the policies chosen to reach the State's emissions reductions there is scarce detail as to how each program will unfold. Other than stating which agency will have the responsibility and how many emissions the State predicts will be reduced from that policy, substance is lacking. This level of detail is inadequate both statutorily and for the overall purpose the plan. The Annotated Code of Maryland in §2-1205(D) states, "The final plan required under subsection (C) of this section shall include: (1) *adopted regulations that implement all plan measures for which state agencies have existing statutory authority*; and (2) a summary of any new legislative authority needed to fully implement the plan and a timeline for seeking legislative authority."

Currently, as written, it is only the programs which are already underway which have adequate levels of detail. Each individual program, regardless of if it is underway or not, statutorily is required to have its regulations written if the relevant agency has existing authority to implement the strategy. Additionally, each program should have its own timeline, indicating major milestones in the program's development and implementation, stating specifically the month and year as to when each agency aims to reach each program's development and success. This will force agencies implementing multiple programs to strategically stagger the planning, rolling out, and implementation of each strategy. It also offers agencies an opportunity to design their own metrics for tracking the plan's progress. Ultimately, the finer the granularity of each

program's plan, the easier it is in both implementation and evaluation of progress. Although some flexibility must be allowed for later developments, the current level of program specificity leaves much to be desired.

2) Governor O'Malley should play a more direct role in overseeing the development of the plan and its implementation.

The Maryland Department of the Environment ("MDE") has been the lead agency tasked with ensuring the plan's development. While MDE should continue playing the role of coordinator, which they have done an excellent job of doing, the Governor, as Executive, is needed to put more pressure on fellow agencies tasked with developing and implementing programs. From an outsider's perspective, given the scant detail which many agencies have provided regarding programs which they have been given three years worth of notice to design and describe in the draft plan, it is difficult to believe other agencies are taking this responsibility seriously.

The Governor, as Executive, has displayed tremendous leadership to the public in his support for the Greenhouse Gas Reduction Act. In order for the statute to be successful, the Governor, or someone from his staff, must demand more from agency heads regarding further development of the plan as well as providing additional backstop support for MDE's role as coordinator among other state agencies which it has no authority over.

3) Progress should be monitored quarterly by the Governor and tracked publicly- both at the individual program level as well as from an aggregated agency wide level.

Each agency should not only report progress to MDE, a sister agency, but rather quarterly reports should be filed by each agency to a staff person of the Governor who should be responsible updating the Governor quarterly on progress. Secondly, the visibility of progress and each strategy's goals must be increased. Currently, the Governor has included the Greenhouse Gas Reduction Act as one of his top fifteen policies which he tracks progress on via StateStat, this is an excellent start. While this graph is tremendously helpful at getting a glance at whether the State is on track, there should be additional links for a more granular view of the individual emissions reduction programs and their progress. One way this could be done would be by aggregating each program by agency so that the Governor and the public could see how each agency is doing towards progress, significantly increasing transparency. This may also instill additional support for the plan across other agencies and create healthy competition.

4) The State should continuously be working to build public support for the plan.

As the plan will call on a number of additional legislative measures and the statute requires an affirmative vote in 2016 to uphold the cap, involved agencies should help increase awareness and support for the plan whenever possible. One way to do this would be for MDE to develop a colorful one-pager highlighting the plan. Perhaps on one side it could feature the plan in general, the goals to be met, the purpose of the law and the economic and environmental benefits. On the other side it could be tailored to list out specific policies of the plan. Agencies responsible for multiple programs could even tailor the backside of the flyer to detail the programs which they are responsible for implementing. This may help instill dedication from other agencies while increasing transparency and accountability. Finally, MDE should be in charge of maintaining a listserv of organizations willing to distribute any of the materials developed for the public for general awareness on the Greenhouse Gas Reductions Act. There are a number of school clubs, nonprofits, religious organizations and more who would welcome the opportunity to help spread the word on the good work the State is doing.

5) The State should consider a life-cycle analysis of emissions resulting from energy consumption.

The Statute states explicitly that emissions are to be calculated from a "consumption" based approach. This was designed because Maryland imports roughly 30% of its electricity from out of state and we wanted to accurately reduce greenhouse gases emitted not only from electricity generated within the state but also generated out of state and consumed in-state. This forward thinking approach should be applauded, however the State should not stop there.

MDE should consider the viability of also including in its emissions inventory and reductions emissions which occur as a result of mining and extracting carbon fuels. Just as the legislature saw it unfit to only consider the greenhouse gas emissions resulting from electricity only generated in Maryland, but included all electricity consumed in Maryland, it would be wise to adopt as holistic approach concerning emissions resulting from energy consumed from the fuel extraction process throughout generation. This would provide for a more accurate approach to comparing the true cost of various electricity sources and would provide additional support for renewables.

6) A new policy or program should be added to the plan regarding fracking.

In large part, the single most important factor for the State's reduction in greenhouse gas emissions (and the nation) to date has been the increased transition to cheap natural gas which displaces coal. While the State should celebrate these emission reductions, the plan should expressly state a program or policy of new legislative action to put into place safe and stringent natural gas regulations should the state allow for fracking. It would be poor foresight for the State to allow this burgeoning industry which can be responsible for achieving significant

reductions in emissions to perform any lower than the strictest environmental standards. It would be highly ineffective if we were to embrace natural gas as an inexpensive fuel and a solution to global warming at the expense of polluting our waterways.

In summary I want to express my sincerest gratitude to MDE and the Governor for their hard work and dedication to our environment. I previously worked for the Maryland Sierra Club for three and a half years and the Greenhouse Gas Reduction Act was the first piece of legislation which I worked on closely at the Sierra Club. It is thus, near and dear to my heart. I have followed the stakeholder process since passage of the law and confess that this Act was one of my main motivations for leaving the Sierra Club and attending law school. I am extremely committed to the Act and its implementation. I commend those who have worked so hard to see this plan through and look forward to further development and implementation of the plan.

Sincerely,

Alana Wase

Response:

1) The level of detail in the plan has been increased, and more links to specific programs have been provided.

2) New legislative authority that is needed will be addressed in the Plan. In cases where authority is already in place, the regulations are listed and discussed. Where there is a need for additional regulations and/or authority, this is included in Chapter 9: Next Steps.

3) The Governor's office is tracking implementation of the plan through the Governor's Delivery Unit (GDU) (https://data.maryland.gov/goals/greenhouse-gases). The Governor has been directly involved in development of the Plan. He has made the Plan into a "stat" process for the state of Maryland, called ClimateSTAT. The Plan itself is a living document that will be changed and edited as the implementation process occurs.

4) MDE is working on a number of communication products and messaging to build public support for the Plan. A separate executive summary of the Plan is being developed as well as communication and messaging for the entire plan and the concept of greenhouse gas reduction. Throughout the next few years, MDE plans to have ongoing stakeholder meetings and discussions leading to further edits to the Plan, which is considered a living document. The responses to comments provided on the Plan will also be communicated to the public on MDE's website, as well as being included in an Appendix of the final Plan.

5) Maryland has been involved in a regional effort in the Northeast to develop a Clean Fuels Standard which considers the life cycle GHG impacts of transportation fuels. The direction and future of the program is currently being re-evaluated. The State has removed any Clean

Fuel Credits from the Plan until the program is better defined. Conducting a full life cycle analysis of other programs in the Plan would present tremendous technical, methodological and resource challenges and, other than addressing natural gas benefits in the power sector, is not feasible to include in the Plan at this time.

6) In the final Plan, hydraulic fracturing or fracking is addressed in Chapter 6. A State Taskforce is currently evaluating fracking separately from the Greenhouse Gas Reduction Plan. While MDE is concerned about gas emissions from other states effecting Maryland, no programs concerning fracking will commence until the Taskforce has published their report. Further, given the limited quantity of shale gas located in Maryland, fracking is less unlikely to contribute as significantly to greenhouse gas emissions as compared to neighboring states.

Commenter: Board of County Commissioners, Frederick County, Maryland

BOARD OF COUNTY COMMISSIONERS
FREDERICK COUNTY, MARYLAND

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August 23, 2012

Robert M. Summers, Ph.D.
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230

Re: Maryland's 2011 Greenhouse Gas Emissions Reduction Act of2009 Draft Plan

Dear Secretary Summers:

On behalf of the Board of County Commissioners ("Board") of Frederick County, Maryland, the following comments on Maryland 's 2011 Greenhouse Gas Emissions Reduction Act (GGRA) of2009 Draft Plan (Plan) are being submitted for consideration as part of the public comment period . Though the formal comment period for this Plan ended August 17, 2012, Mr. Luke Wisniewski suggested that the Maryland Department of the Environment (MDE) would accept public comment from Frederick County if received by August 24, 2012. We greatly appreciate the extra time to digest the 361 page plan and its 1,000-plus page Appendix.

Frederick County Government supports the comments made by the Maryland-Association of Counties (MACo) on August 17, 2012. However, we have additional comments. In general, the Plan has a disproportionate effect on rural counties, which by definition does not have the existing or planned dense development of urban areas, or the same mass transit opportunities.

The Plan has specific requirements for local governments as described in Appendix C. Frederick County Government would likely be directly and disproportionately affected by:

- Transportation-13: Evaluate the GHG Emissions Impacts from Major New Projects and Plans: The Maryland Department of Transportation would require greenhouse gas emissions to be evaluated in environmental studies for large transportation projects, and

could require mitigation. This could add significant costs to transportation projects that disproportionately affect rural areas.

- Land Use-1: Reducing GHG Emissions from the Transportation Sector through Land Use and Location Efficiency: The Maryland Department of Planning (MDP) would require development projects and regional land use planning to "sharply reduce the rate" of increasing vehicle miles traveled, mitigate increased greenhouse gases, charge a fee for increased VMTs, and develop goals that local transportation plans and projects must achieve in order to receive state transportation funds. The MDP also proposes a law to create "emission caps for the transportation sector, implemented through development or adjustment of regional and local land use, transit, and affordable housing plans, and other transportation and land use strategies" parallel to California's Senate Bill 375. This item would have a major impact on local government planning authority, and would disproportionately affect rural counties.

- Land Use-2: Transportation GHG Targets for Local Governments and Metropolitan Planning Organizations: MDP would "establish transportation GHG targets for local governments and metropolitan planning organizations," require that "75 percent of Maryland's new development between 2011 and 2020 will be compact development," and additional requirements in common with Land Use 1 above. The 75% requirement should be a state average and not a one size fits all rate, else it disproportionately affects rural counties.

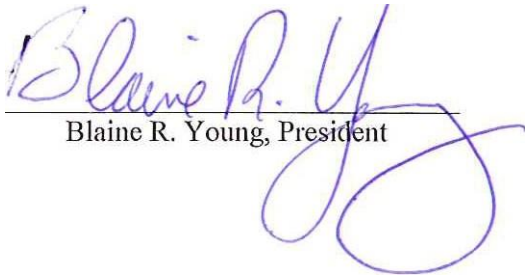
- Land Use-3: Funding Mechanisms for Smart Growth and Land Use-4: GHG Benefits from Priority Funding Areas and Other Growth Boundaries share the same issues as Land Use 1 above.

In addition to MACo's recommendations, we strongly urge MDE and its sister agencies to address the disproportionate economic impacts to rural counties in the GGRA Plan, and to eliminate elements that take away local land use authority.

Thank you for giving Frederick County this opportunity to provide public comment. Please contact Ms. Shannon Moore, Frederick County's Office of Sustainability and Environmental Resources Manager, at (301) 600-1413 should you have any questions regarding this information.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
OF FREDERICK COUNTY, MARYLAND

By: 
Blaine R. Young, President

BRY/SKM/jmg
cc: Board of County Commissioners
David B. Dunn, County Manager
Michael G. Marschner, Special Projects Manager, County Manager's Office
Eric E. Soter, Director, Community Development Division
Shannon K. Moore, Manager, Office of Sustainability and Environmental Resources, Community Development Division

Response:

1) Transportation-13:
   a) MDOT is only requiring greenhouse gas (GHG) emissions to be evaluated, on a case by case basis, in environmental studies for large transportation projects in the Plan. It will not require counties to do so. The Plan outlines several potential strategies under the Transportation – 13 Program, but does not immediately put these strategies into effect. These potential strategies are tools that could possibly be used to reduce GHG emissions in the transportation sector. The National Environmental Planning Act already requires environmental studies to be conducted on large projects. Adding a GHG emissions evaluation to these environmental studies would not significantly increase the costs or time of the evaluation. This additional work could possibly result in changes that increase the cost of the project and/or time to construct transportation projects but will not target urban areas exclusively; both rural and urban areas will be equally impacted. As far as mitigation for GHG emissions, this is currently not required. The Plan does not require mitigation, and MDOT has not determined if mitigation would even occur at all.
   b) The State will continue to pursue its regulation to establish long range GHG targets for transportation planning, but will not require any additional work on the part of local governments or metro planning organizations in light of, and as part of, the federal conformity process. This is a separate process from the development of the GGRA Plan.

2) Land Use 1-4:
   a) The State has not made a commitment to levy Vehicle Miles Traveled (VMT) fees. It is one of many options being considered. MDOT, along with transportation agencies in other Northeast states, considers a VMT fee as a potential revenue source. VMT fees could be designed so as not to disproportionately affect rural counties.
   b) MDP understands the concerns in regard to impacts on rural areas and on local governments. Any policies developed will include the opportunity for input by local governments and counties. Making a difference now, rather than later, is important to prevent increases in greenhouse gas emissions by promoting efficient development and

land use. The longer efforts to reduce greenhouse gases are stalled, the more expensive and difficult achieving reductions becomes.

c) This Plan is an idea and guide on how to reach the goals and how to implement mechanisms for reductions. Regulations are implementation mechanisms that can possibly be put in place to reduce greenhouse gas emissions but are not part of the Plan itself. The state has already asked for other mechanisms rather than regulations, to implement policies.
d) The 75% goal for compact development is a goal, not a requirement of the Plan. This goal will be used to direct the state on whether additional or different programs and policies are needed.

Commenter: Bob Geiger and Catherine Buckler

From: Bob Geiger / Catherine Buckler <bobandcath@prodigy.net>
To: <climate@mde.state.md.us>
Date: 8/16/2012 3:48 PM
Subject: comments on GGRA Draft

I am submitting comments on the GGRA Draft. First of all I want to thank the department for its work and for the presentation at the July 17 public comment meeting in Silver Spring. At some point, the state needs to look at giving the utilities a structure (often referred to as "de-coupling") that provides incentives for less energy sonsumption rather than rewarding them for more energy consumption. A second comment is that when considering the effects of different automobile fuels, please consider the life cycle effects, such as the total carbon footprint associated with the fuels dereived from Canadian tar sands. In addition to those comments, I second the points raised by the Chesapeake Climate Action Network. We need a renewable energy portfolio structure that recognizes truly clean energy.
Sincerely,
Bob Geiger
1027 Carson St.
Silver Spring, MD 20901

August 16, 2012

Response:

1) The state of Maryland has already enacted a utilities structure which provides incentives for lower energy consumption, also called decoupling. EmPOWER Maryland is the program currently in place that reduces energy consumption. The Plan does not review decoupling since it is already in place in Maryland.

2) Transportation – 3:
   Innovative Initiatives – 2:
   a) Maryland has been involved in a regional effort in the Northeast to develop a Clean Fuels Standard which considers the life cycle GHG impacts of transportation fuels. The direction and future of the program is currently being re-evaluated. The State has removed any Clean Fuel Credits from the Plan until the program is better defined. Conducting a full life cycle analysis of other programs in the Plan would present tremendous technical, methodological and resource challenges and, other than addressing natural gas benefits in the power sector, is not feasible to include in the Plan at this time.

Commenter: Department of Land Use, Planning & Development Carroll County

Philip R. Hager, Director
Thomas S. Devilbiss, Deputy Director
410-386-2145. fax 410•386•2120
Toll Free 1-888-302-8978
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Department of
Land Use, Planning & Development
Carroll County Government
225 North Center Street
Westminster, Maryland 21157

August 10, 2012

George "Tad" Aburn, Director
Air & Radiation Management Administration
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230

Re: Greenhouse Gas (GHG) Reduction Act Draft Plan

Dear Mr. Aburn:

The Department of Land Use, Planning & Development (LUPD) staff has reviewed the draft plan. We would like to offer comments, particularly on those implementing measures and programs that relate to transportation and land use issues. The most- relevant programs are grouped by sector, with the related comments following each grouping.

• Transportation - 9: Pricing Initiatives
AND
• Transportation - 13: Evaluate the GHG Emissions Impacts from Major New Project and Plans

Maryland Department of the Environment (MDE) is developing regulations to begin implementing the piece of this program that would run separate from but parallel to the transportation conformity process, in which Carroll County participates as a member of Baltimore Metropolitan Council (BMC). This new program would establish voluntary, long-term planning targets for GHG emissions. The proposal would require a report to be developed and considered very late in the process. These regulations are expected to be in place by the end of 2012.

Comments:

• LUPD staff has been responding to the proposed regulations and attending meetings to provide comment. It is evident that MDE staff is not well versed on the transportation planning process. Coordination with the appropriate local, State (MDOT), and regional (Baltimore Metropolitan Council) agencies throughout the drafting of regulations has been absent which results in an uninformed proposal that is not feasible to implement. If this proposed regulation is meant to influence the types of transportation projects that are included in local and State transportation plans, and ultimately funded and implemented, information related to the effects of proposed projects on air quality need to be considered during the early planning stages. In addition, it is difficult to understand how the GHG targets can be voluntary once a regulation is associated with them.

• Associating these proposed regulations with the setting of long-term planning targets for GHG suggests that additional requirements or restrictions will be proposed to influence what a local jurisdiction may include in its comprehensive plan, particularly in the transportation and land use elements. This conflicts with the role of local governments as prescribed in the land Use Article and is another example of State overreach into local land use authority. Any additional regulations or requirements should include coordination with the appropriate local and regional agencies and be adequately vetted through the public process and the legislature to ensure comprehensive input on local implementability and impacts.

• Imposing additional fees on residents, developers, property owners, and/or other transportation facility users increases the cost, making it more difficult to proceed through the process, which could be fiscally devastating to both property owners and local governments. It also makes it more difficult for Marylanders' to afford to live in the state, which especially impacts border counties such as Carroll. Achieving the goals of PlanMaryland, the intent of Smart Growth, and the State Visions of the Land Use Article, such as economic development and Infrastructure (5 and 8), cannot be accomplished if living or building in Maryland, including rural counties, is too expensive. Revenues from economic development and new residential growth allow local governments to continue to maintain the level of service for facilities on which its residents and businesses rely.

• Variable vehicle miles traveled (VMT) pricing, such as is suggested through the "pay-as-you-go" example in the draft plan, places additional strain on residents in an already-suffering economy. The use of VMTs as a measure of effectiveness at reducing emissions disproportionately discriminates against communities that do not have rail or subway access- paid for by federal funds. Commuting from rural communities may mean more miles traveled. However, a correlation does not necessarily exist between miles traveled and emissions. In fact, duration of travel is a greater indicator than length of travel; slow-moving congested traffic generates far more pollution than vehicles travelling at posted speeds in rural communities. For example, a 10-mile commute that requires 30 minutes of travel time generates more pollution than a 30-mile commute at 30 minutes of travel time. In addition, VMT at the individual person or household level is too variable to use as a basis for pricing and additional costs and fees. While we do not support the concept at all, at the very least, commuter VMTs would be more appropriate than VMTs as a whole, if this can even be accurately disaggregated. Basing fees on a total VMT penalizes people who travel by car for vacation - many of which may not be able to afford to travel by train or air, or it may not even be an option for that destination. It also does not take into account those whose jobs necessitate daily travel from one customer to another. Additionally, detecting the changes that result from people changing jobs would be difficult to accurately and fairly capture.

• This program would result in a significant increase to the workload of existing comprehensive planning and development review staff. The additional review criteria would also lengthen the development review process timeframe.

• Ag and Forestry -10: Nutrient Trading for GHG Benefits

The plan suggests that many of the practices that reduce nutrients also store carbon and lower GHG emissions. Therefore, the State will take advantage of the existing Maryland Nutrient Trading Program to provide a platform for the addition of a voluntary carbon component. Maryland Department of Agriculture (MDA) is developing the program component to add carbon credits to the Nutrient Trading Program, which would be "stacked" onto existing nutrient credits as tradable commodities. This idea is based on the assumption that this would increase the potential value of the total credit package.

Comments:
Since the draft growth offset policy was just released in late July, staff is still in the process of understanding it and attending associated meetings. Along with reviewing and understanding the recommendations and impacts of the proposed plan, the County also will need to review and understand the Nutrient Trading Program to fully evaluate potential concerns and impacts associated with adding carbon to that program. At the very least, we are concerned with the additional cost of development and the local jurisdiction's control of local land use and growth policy. To completely strangle new development would have devastating fiscal impacts on local governments. The offset requirements and criteria will take away local land use control; local governments will not be able to realize their comprehensive plans under these conditions and will insert State agencies into local development plan approvals. Local governments will no longer be able to dictate the type of land uses desired to meet their goals and population projections. identify where to accommodate those needs, or be able to afford an adequate level of service for the citizens.

- **Land Use- 1: Reducing Transportation Emissions through Smart Growth and Land Use/Location Efficiency**
- **Land Use - 2: GHG Targets for Local Government's Transportation and Land Use Planning**
- **Land Use - 3: Land Use Planning GHG Benefits**

AND

- **Land Use - 4: Growth Boundary GHG Benefits (Priority Funding Area GHG Benefits)**

These strategies are based on the notion that land use patterns affect Marylanders' ability to travel to various destinations. Therefore, "developing incentives and requirements for regional land use patterns that achieve land use and location efficiency reduce motor vehicle dependence" [Pg 251],thereby reducing VMTs and, subsequently, GHG emissions.

These strategies indicate that "the only method to ensure a reduction in overall transportation emissions over time is to sharply reduce the rate of VMT, which will require a significant adjustment of land use patterns away from automobile-oriented development.• [Pgs 253, 254, 255, & 256)

The plan suggests that in addition to continued implementation of current smart growth programs and policies, State agencies will implement recommendations such as the following:

- Investigate the feasibility of implementing California SB 375 In Maryland;
- Develop sustainability criteria that local transportation plans and projects must achieve to receive State transportation funds;
- Investigate the feasibility of implementing Rule 9510 of the San Joaquin Valley Air Pollution Control District in Maryland;
- Perform a VMT Fee Pilot Project Study in Maryland, examining the use of variable VMT pricing to both reduce GHG emissions and fund State transportation needs;
- Update the existing transportation model (maintained by 8MC) to take GHG reduction benefits into account; and
- Develop additional metrics to determine progress.

The plan states that additional statutory or regulatory authority along with new State policies, will be needed to implement some of these recommendations.

Comments:
These concepts are based on the fallacy that VMTs are the single best indicator of environmental degradation resulting from air pollution. In fact, trip duration, particularly at slow speeds, is a far better indicator. While significant impact on local land use planning is the goal of these strategies, these could be significant negative impacts and could be exacerbated by the incorrect choice of measures and indicators. Additionally, any one of these programs will considerably increase staff workload and the amount of time it takes to get through a planning or development process.

• Requiring local land use plans to meet certain GHG emissions criteria, for which the associated transportation projects would need to be consistent, would insert into the already-cumbersome planning process additional processes and criteria to meet for a local jurisdiction to be eligible to include a transportation project in a plan. This also could unduly give greater weight to transportation issues, rather than a more comprehensive, holistic approach, thereby diminishing the value of other land use and comprehensive planning issues that should also be considered and balanced. It also becomes very narrowly focused in terms of outcomes. It is the job of local government to develop local goals and land use strategies. If the State is going to subsume this responsibility, the additional workload and time for review should be absorbed by the State as well. Additionally, these measures seek to once again apply a statewide standard to all

local jurisdictions, ignoring the fact that there is tremendous individuality and diversity between and among Maryland's subdivisions. This is a continuation of an erroneous course of action that the State embarked upon through the impel mentation of PlanMaryland. As stated ad nauseam, one size does not fit all.

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• 'Requiring local targets for emissions reductions, proposed to be measured through VMTs. will likely result in many of the same issues and concerns generated through the process of pinpointing the baseline and specific reductions needed for nutrients through the Phase n Watershed Implementation Plan. Identifying specific targets through modeling generally cannot be done precisely enough at a small geographic scale to provide any certainty to the baseline figures or that could be attributed to specific implementation practices.

• Requiring development plan projects to meet certain GHG emissions requirements as a condition of approval as well as increasing the cost and making it more difficult to proceed through the process, could be fiscally devastating to both property owners and local governments. While property owners need to have some degree of certainty that the value of their land investment will not be completely diminished, it also is imperative for local governments to maintain some level of growth to provide economic development and associated revenues, as well as the ability to determine the most appropriate location for these activities, whether new growth or redevelopment. These revenues allow local governments to continue to maintain the level of service for facilities on which its residents and businesses rely. Imposing additional fees on residents, developers, property owners, and/or other transportation facility users also contributes to this problem. Furthermore, we do not support any efforts to insert direct State involvement in the process of local land use and development approvals. This clearly would diminish the local land use authority, even if done indirectly.

• The California initiatives include mandating more restrictive requirements for local plan housing elements. This process is a "catch 22" situation, where requiring higher-density housing necessitates additional transportation needs. However, because of projected increases in VMTs, the County would not be able to get funds for additional transportation projects. Additionally, while the State may call for a higher density for new development, at the same time, many of Carroll's municipalities are not able to achieve higher densities due to restrictions

on water or wastewater capacity imposed by the State and/or the high cost of improvements to upgrade these facilities.

•Local governments already have many requirements and unfunded mandates with which to comply. We have had to do much more with much less, and imposing more restrictive plan content and timeline requirements on local planning documents and processes does not serve to improve the quality of the results of these planning processes, especially since there is no evidence clearly establishing that any of these policies will result in the desired reductions or outcomes.

• Timeframe for Review

With the many different State initiatives that have bombarded local governments in the past year or so, we are finding it difficult to keep up with all of the issues and to ensure adequate time to review and comment on each. Thus, while we believe this plan and its implementing tools are very important and have significant impacts on local governments and implications for local planning, we also feel that our comments may not adequately cover all of the implications and concerns, nor adequately express the magnitude of what we believe the impacts may be. **We would respectfully request the deadline for comment be extended until after the 2013 General Assembly closes to ensure that local governments have adequate time to review the draft and identify impacts and comments, particularly in combination with the other recent State lnitiatives.**

Moreover, given the far-reaching impacts, it would be more appropriate to include the State legislature in the development and review of these mandates. The legislature was bypassed in the review and approval of PlanMaryland and many bills were introduced attempting to address this concern. Another plan of this magnitude avoiding the legislative process does not serve to ameliorate these concerns or promote the public's best interest.

Thank you for carefully considering our concerns and comments. We sincerely hope that revisions to the programs and strategies in this document will be made to address these concerns. We have invited MDP to present on the land use and transportation aspects of this plan to our Board of County Commissioners. We would welcome MDE's participation as well.

Sincerely,

Philip R. Hager
Director
Carroll County Land Use, Planning & Development

Response:

1) Transportation-9 and Transportation-13
   a) MDE staff has been coordinating with local, regional, and state agencies and organizations throughout the drafting of the Plan. Coordination with various agencies has occurred through a number of meetings. Individual meeting with local governments have also occurred when requested. MDE has also participated in local stakeholder meetings which were inclusive and open to the public. Some of the groups present and active in the planning process have been the Baltimore Metropolitan Council, the Washington Metropolitan Area Transit Authority Metropolitan Washington Transportation Planning Board, Maryland Association of Counties, as well as individual counties and specific environmental groups.
   b) The State will continue to pursue its regulation to establish long range GHG targets for transportation planning, (COMAR 26.11.37), but will not require any additional work on the part of local governments in light of the federal conformity process. This is a separate process from the development of the GGRA Plan. The State has solicited input on the feasibility of implementing other mechanisms as alternatives to a regulation. Recommendations included in the Plan will not trigger implementation of any targets set under the rulemaking process.
   c) The State has not made a commitment to levy Vehicle Miles Traveled (VMT) fees. It is one of many options being considered. It is one of many options being considered. MDOT, along with transportation agencies in other Northeast states, considers a VMT fee as a potential revenue source. VMT fees could be designed so as not to disproportionately affect rural counties.
   d) The National Environmental Planning Act already requires environmental studies to be conducted on large projects. Adding a GHG emissions evaluation to these environmental studies would not significantly increase the costs or time of the evaluation. This additional work could possibly result in changes that increase the cost of the project

and/or time to construct transportation projects but will not target urban areas exclusively; both rural and urban areas will be equally impacted. As far as mitigation for GHG emissions, this is currently not required. The Plan does not require mitigation, and MDOT has not determined if mitigation would even occur at all.

2) Agriculture and Forestry 10
   a) The accounting for growth proposal has been removed from the Plan and will be reevaluated by a new advisory committee.

3) Land Use 1-4:
   a) The State has not made a commitment to levy Vehicle Miles Traveled (VMT) fees. It is one of many options being considered. MDOT, along with transportation agencies in other Northeast states, considers a VMT fee as a potential revenue source. VMT fees could be designed so as not to disproportionately affect rural counties. VMT fees could be designed so as not to disproportionately affect rural counties.
   b) The VMT Fee Pilot Project study in Maryland is an idea put forward as a way to generate needed revenues as well as reduce harmful emissions, but the state understands that there are many possibly negative issues with this program. One issue that is agreed upon is that the program might not be successful in Maryland, which as a small state may work differently from larger western states. All parties involved are considering the feasibility of implementing such a pilot, with significant input from local governments. Local governments will still retain their authority over land use decisions. If this program were to be implemented, it would be a partnership with local, state, and federal governments.
   c) MDP understands the concerns in regard to impacts on rural areas and on local governments. Any policies developed will include the opportunity for input by local governments and counties. Making a difference now, rather than later, is important to prevent increases in greenhouse gas emissions by promoting efficient development and land use. The longer efforts to reduce greenhouse gases are stalled, the more expensive and difficult achieving reductions becomes.
   d) This Plan is an idea and guide on how to reach the goals and how to implement mechanisms for reductions. Regulations are implementation mechanisms that can possibly be put in place to reduce greenhouse gas emissions but are not part of the Plan itself. The state has already asked for other mechanisms rather than regulations, to implement policies.

4) Timeframe for review:
   a) The state will continue to work with local governments and other interested parties on implementation, and as required by GGRA, will be doing a 2015 report to the legislature about what's working, what's not working, and what needs to be changed.

Commenter: Consumer Energy Alliance

From: Natalie Joubert <NJoubert@hbwresources.com>
To: "climate@mde.state.md.us" <climate@mde.state.md.us>
CC: Michael Whatley <MWhatley@hbwresources.com>
Date: 8/17/2012 3:52 PM
Subject: Public Comments on MD Greenhouse Gas Emissions Reduction Act of 2009 Draft Plan
Attachments: CEA Comments to MD Dept of Environment__GGRA Plan 2011.pdf

Dear Secretary Summers:

On behalf of Consumer Energy Alliance, please find attached comments on the Maryland Department of the Environment 2011 Greenhouse Gas Emissions Reduction Act of 2009 Draft Plan, signed by CEA Executive Vice President Michael Whatley. If you have any questions, please direct them to Michael Whatley (202-674-1750; mwhatley@consumerenergyalliance.org<mailto:mwhatley@consumerenergyalliance.org>) or myself.

Thank you for the opportunity to comment on this important matter.

Sincerely,

Natalie Joubert

Natalie Joubert
Consumer Energy Alliance
1666 K Street, NW Suite 500
Washington, DC 20006
(202) 429-4931 (office)
(202) 423-8391 (mobile)

[cid:image001.jpg@01CD7C90.2C91F430]

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August 17, 2012

Secretary Robert Summers
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230

RE: Comments on Maryland's 2011 Greenhouse Gas Emissions Reduction Act of 2009 (GGRA) Plan

Dear Secretary Summers:

On behalf of Consumer Energy Alliance (CEA), I would like to submit the following comments regarding "Maryland's Plan to Reduce Greenhouse Gas Emissions," published by the Maryland Department of the Environment on December 31, 2011.

Consumer Energy Alliance, a non-profit, non-partisan organization, was formed to help support the thoughtful development and utilization of all domestic energy resources to improve domestic energy security and reduce consumer prices. CEA has over 200 consumer and energy organizations across the country and more than 300,000 individuals that are dedicated to the development and implementation of a balanced energy policy that will ensure affordable, reliable energy while protecting the environment.

CEA would like to address the Plan's inclusion of a "Clean Fuels Standard (CFS)" as one of the options available to reduce greenhouse gas (GHG) emissions from the transportation sector. As the report notes, governors from 11 states in the Northeast and Mid-Atlantic region signed a Memorandum of Understanding in December 2009 to conduct an economic analysis of a clean fuel standard (initially named a "low carbon fuel standard"), develop recommendations on the program, and draft a regulatory framework for the states. The Northeast States for Coordinated Air Use Management (NESCAUM) has since provided technical support to these states and has issued a report entitled, "Economic Analysis of a Program to Promote Clean Transportation Fuels in the Northeast/Mid-Atlantic Region," released in August 2011.

CEA believes that the assumptions relied upon by NESCAUM in its economic analysis are unrealistic and unsupportable, and that its conclusions demonstrating broad economic benefits from a potential Northeast/Mid-Atlantic regional CFS must therefore be critically flawed and unreliable.

In response to the release of the economic analysis by NESCAUM in August 2011, CEA commissioned a report by IHS CERA and IHS Global Insight to conduct an independent assessment of the analysis. The

assessment completed by the IHS team demonstrates that the assumptions employed for prices, availability, infrastructure and technological performance of low-carbon fuels and alternative vehicles are unreasonable, unsupportable and unattainable in the 2013-2022 timeframe of the NESCAUM analysis. The IHS assessment concludes that the assumptions underlying the scenario analyses presented in the NESCAUM economic analysis cannot be realistically achieved in the 2013-2022 timeframe for any of the scenarios in the analysis and that each of the scenarios presented in the

NESCAUM report claim economic benefits and lower costs association with low-carbon fuels that are unattainable under any reasonable set of expectations for the period to 2022. For these reasons, CEA strongly discourages Maryland from relying heavily on NESCAUM's economic analysis to support implementation of a CFS as a cost-effective means of reducing GHG emissions. I have included a detailed review of these assumptions is included in the attached appendix.

In addition to the IHS assessment, a separate study released in March 2011 by Consumer Energy Alliance, with analysis conducted by SAIC, confirmed that a regional, Northeast/Mid-Atlantic low carbon fuel standard (LCFS) program would result in significant negative economic impact to all 11 states while achieving a maximum, weighted-average, regional reduction of only 4.9 percent carbon intensity in the area's fuel pool. In order to achieve this modest carbon-intensity reduction, it would cost the region at least $306 billion (nominal 2009 dollars) and a loss of at least 147,000 jobs. For fuel consumers, gasoline prices would at least double, increasingly significantly in 2021.

At the state level, the study concludes that an LCFS would result in a 4.09 percent reduction in the carbon intensity of the Maryland fuel pool, leading to a cumulative carbon reduction of 3.0 gCO_2/KBtu over a ten-year period. However, the program would also result in the cumulative loss of 15,500 Maryland jobs and a $2.6 billion (nominal 2009 dollars) decline in gross domestic product. Additionally, gasoline prices in Maryland would increase by 116 percent over the course of the same time frame.

While this modest reduction in carbon intensity may contribute slightly to Maryland's goal of a 25 percent reduction in GHG emissions by 2020, a Clean Fuel Standard clearly and significant violates one of the Plan's principal objectives to "have a positive impact on job creation and contribute to Maryland's economic recovery."

In conclusion, CEA strongly urges the Maryland Department of the Environment to more closely examine the potential economic impacts of a Clean Fuel Standard program prior to its inclusion as part of the state's final GHG reduction plan. We believe it is in the interest of Maryland's workers, businesses and fuel consumers to explore other GHG emission reductions strategies that achieve demonstrated GHG reductions without posing a risk of economic harm.

Please contact me directly at 202-674-1750 if you have any questions or would like to discuss either of the reports referenced in these comments. I have included links to each of these studies below:
IHS "Assessment of the NESCAUM Economic Analysis of a Clean Transportation Fuels Program for the Northeast/Mid-Atlantic Region"

http://www.secureourfuels.org/wp-content/uploads/2011/11/IHS-CERA-Economic-Analysis-ofa-

Clean-Transportation-Fuels-Program.pdf

Consumer Energy Alliance, "Analysis of the Economic Impact of a Regional Low Carbon Fuel Standard on Northeast/Mid-Atlantic States"

http://www.secureourfuels.org/wp-content/uploads/2012/03/FINALCEA_LCFS_REPORTMASTER_DRAFT_DOCUMENT_3-23-2012.pdf

Thank you again for the opportunity to provide these comments.

Sincerely,

Michael Whatley
Executive Vice President

Attached: Appendix on IHS Assessment of the NESCAUM Economic Analysis

Appendix

IHS CERA & IHS Global Insight Report: "Assessment of the NESCAUM Economic Analysis of a Clean Transportation Fuels Program for the Northeast/Mid-Atlantic Region"

In August 2011, the Northeast States for Coordinated Air Use Management (NESCAUM) released its economic analysis of a proposed "Clean Fuels Standard" (CFS) or "Low-Carbon Fuel Standard" (LCFS) for the Northeast and Mid-Atlantic. While NESCAUM's report concludes that a CFS will lead to job growth and lower fuel prices, IHS concluded that these assessments are based on unrealistic and incorrect assumptions for the availability, price, infrastructure and technological performance of clean fuels in the region, assumptions that are far apart from expert and government opinion.

1. Assumptions about the availability of next generation biofuels: NESCAUM's assumptions about the availability of next generation biofuels, including cellulosic ethanol are dramatically higher than EPA estimates and contradict a recent report by the National Academy of Sciences regarding the projected availability of cellulosic ethanol. For example, NESCAUM assumes that cellulosic ethanol availability in the Northeast/Mid-Atlantic region in at 70 million gallons in 2013 going up to 2.6 billion gallons by 2022, whereas the EPA projects a potential national availability as low as 3.5 million gallons nationally in 2012 and recognizes that there have been zero gallons produced and commercially available in either 2010 or 2011.

2. Price Assumptions regarding advanced biofuels: NESCAUM assumes that not only will advanced biofuels such as cellulosic ethanol and renewable diesel be available in sufficient quantities to meet the carbon intensity reduction goals of the CFS program, but that they will also be cheaper than traditional gasoline and diesel. Given that there are no gallons being commercially produced today, as well as the fact that the National Academy of Sciences has concluded that biofuels will be economic only at a crude oil price above $191 per barrel, NESCAUM's price assumptions are not merely unsupportable, they are completely unrealistic.

3. Price Assumptions regarding Plug-in Hybrid Electric Vehicles (PHEVs): NESCAUM assumes that there will be no cost differential between PHEVs and internal combustion engine (ICE) vehicles whereas EPA and the National Highway and Transportation Safety Administration (NHTSA) projects a $16,000 differential.

4. Price Assumptions regarding Battery Electric Vehicles (BEVs): NESCAUM assumes that BEVs will range from $15,000 in 2013 down to $3,000 in 2022 higher in price compared to ICE vehicles, which is substantially lower than projections by the California Air Resources Board and the Department of Energy's Sandia Laboratory.

5. Assumptions about the availability of PHEVs: NESCAUM assumes PHEV sales in the Northeast/Mid-

Atlantic region of approximately 50,000 vehicles in 2013 up to approximately 275,000 vehicles in 2022, which is dramatically higher than the federal Energy Information Administration (EIA) projections of less than 10,000 nationwide in 2013 rising to approximately 25,000 nationwide in 2022.

6. Assumptions about the availability of BEVs: NESCAUM assumes that there will be between 250,000 and 300,000 BEV sales in the region in 2022 under the biofuels future scenario and natural gas future scenario and approximately 800,000 BEV sales in the region in 2022 under the electricity future. These are in stark contrast to EIA projections of less than 10,000 BEV sales nationwide annually during the entire 2013-2022 timeframe.

Response:

1) Clean Fuel Standard
   a) While identified in the Plan as an emerging program, Maryland is not taking any GHG credits for the Clean Fuel Standard Program in the updated Plan. The Clean Fuel Standard Program is an emerging policy which will continue to be evaluated in the future. The Plan does not attribute any benefits from it. With further analysis and updates to the Plan it could possibly be included with more discussion by stakeholders. Instead of relying solely on the NESCAUM analysis, the State of Maryland has closely worked with SAIC to conduct additional economic analyses which will be included in the final Plan.

Commenter: Dan Morrow

From: Dan Morrow <dmorrow7@gmail.com>
To: <climate@mde.state.md.us>
CC: <bhug@mde.state.md.us>
Date: 8/16/2012 2:15 PM
Subject: Suggestions for draft GGRA Plan
Attachments: Proposal for Study of Cap and Dividend--Morrow Aug 2012.doc; Part.002

Let me first express my appreciation to MDE and the entire team from many departments who have prepared the first draft of the GRRA Plan: it is a very good document and outlines a substantial set of programs and policies.

In response to the request for public comments on the draft GGRA Plan (posted on June 20, 2012), I would like to submit the following suggestions for further improvements:

1. On why Marylanders should act to reduce greenhouse gas emissions. The draft does a good job of explaining why Maryland should take action: to take responsibility for doing its share in response to the global problem; to provide leadership among US states on climate action; to realize the substantial, local co-benefits that accompany reductions in greenhouse gas emissions; and to generate new jobs related to investments in energy efficiency and renewable energy production. Perhaps the latter argument could be augmented by including this idea: as recognition of the need to mitigate climate change grows around the world, there will eventually but inevitably be national policies that mandate reductions in greenhouse gas emissions, and, by taking action now, Maryland can stay "ahead of the curve" on energy efficiency and on low-carbon energy production so that Maryland businesses can protect their competitiveness in the national and global economy.

2. On strengthening the RGGI. The draft report makes clear that Maryland's continued participation in the RGGI is an essential component of the Plan: even with its current targets, the RGGI is projected to account for over 17 mmt of Maryland's GHG reductions out of the total of about 60 mmt by 2020. The draft also mentions that a comprehensive review of the RGGI is being undertaken during 2012 by the participating states. Although I don't know the status of that review and the subsequent timetable for decisions about any modifications to the RGGI, it seems to me that the Plan should be a vehicle by which Maryland puts forward its position on RGGI's future and also lay the foundation for future RGGI innovations. In that context, I would like to make two suggestions.

-- First, the Plan should advocate that the cap on GHG emissions by power plants covered by RGGI should be reduced relative to the original program. It seems clear that the recent economic recession and the dramatic decrease in the price of natural gas in the US will make it possible for power companies to achieve the original 2018 cap rather easily, and this creates an opportunity to move forward more

aggressively to reduce the cap.

-- Second, the Plan should include authorization for a study of the feasibility of eventually switching Maryland's RGGI program to a "cap-and-dividend" program in which most of the proceeds from the auction of allowances would be distributed to citizens directly. As discussed in more detail in the attached note, such a study--which Maryland could undertake initially on its own and then expand to include other interested RGGI states--would be motivated by recognition that, at some point in the future, the auction proceeds might exceed the requirements for public funding of investments in energy efficiency and renewable energy. At that point, distributing the auction proceeds as dividends to citizens would have important economic and political advantages. Having a plan for such an eventual transformation of the program might reduce near-term political resistance to reducing the cap. Undertaking such a study would be an important way in which Maryland could continue to exercise a leadership role with respect to climate action policies.

3. On the presentation of the science of climate change. In the sections of Chapter 1that summarize the science, the draft report refers primarily to the International Panel on Climate Change(IPCC)--for example, in the box on p. 19 and on p. 27. Because some Marylanders might be suspicious or skeptical about this international, UN-linked group, it might be useful to give greater, if not primary, attention, to the report by the National Academy of Science on America's Climate Choices, which is referenced only briefly on p. 22 and p. 52, and also to refer briefly to the many other US science organizations that have endorsed the basic science of climate change.

I hope that my suggestions are clear and useful. Thanks for the opportunity to share my ideas.

Dan Morrow

Proposal for a Feasibility Study
of Transforming RGGI into a Cap-and-Dividend Program

By Dan Morrow
August 16, 2012

This note puts forwards a proposal for including within Maryland's Greenhouse Gas Reduction Act (GGRA) Plan (the Plan) authorization for a study of the feasibility of eventually transforming Maryland's Regional Greenhouse Gas Initiative (RGGI) program into a "cap-and-dividend" program in which most of the proceeds from the auction of emission allowances would be distributed directly to Maryland citizens.

The Plan as an Instrument for Leadership and Innovation within RGGI

This proposal is based on the premises that participation in RGGI will be a core component of the Plan[1] and, furthermore, as part of the Plan, Maryland should seek to increase RGGI's effectiveness by setting more ambitious targets for reducing regional CO2 emissions. In that context, the Plan can potentially have its greatest impact by providing leadership and catalyzing innovation within RGGI, and RGGI in turn can influence the evolution of cap-and-trade programs around the world.[2] A study that identifies a way forward toward transforming RGGI into a cap-and-dividend program could thereby have a significant impact on global efforts to mitigate climate change.

On the Basic Rationale for a Cap-and-Dividend Program

A program in which all or most of the proceeds from auctioning RGGI allowances are distributed to citizens as dividend payments would have significant economic and political advantages.[3] Economically, it would ensure that citizens are compensated for the increase in

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[1] According to the draft Plan (pp. 128 and 135), participation in RGGI would contribute 17.71 million metric tons of CO2 emission reductions by 2020—over one-fourth of total reduction of 64 million metric tons projected among all sectors under the draft Plan. Hence the Plan cannot succeed unless RGGI is successfully implemented. This and other references to the draft Plan in this note refer to the draft posted at http://www.mde.state.md.us/programs/Air/ClimateChange/Documents/2011%20Draft%20Plan/2011GGRADRAFTPlan.pdf

[2] As stated in the draft Plan (p. 144), "…an important secondary goal [of RGGI] was to demonstrate that a GHG cap-and-trade program could work."

[3] There is an extensive literature on the concept of a cap-and-dividend program and similar programs in which revenues generated by a cap-and-trade program and/or a carbon tax are distributed directly to citizens. As examples, see (a) Boyce, James K., and Matthew Riddle, 2007. "Cap and Dividend: How to Curb Global Warming While Protecting the Incomes of American Families", Working Paper Series No. 150, Political Economy Research Institute, University of Massachusetts Amherst. http://www.capanddividend.org/files/WP150.pdf and (b) Wheeler, David, 2008. "Why Warner-Lieberman Failed and How to Get America's Working Families behind the Next Cap-and-Trade Bill" Center for Global Development Working Paper Number 149, July 17. http://www.cgdev.org/content/publications/detail/16387/. Also for a recent political history of proposed

electricity prices that will likely result from gradually reducing the regional cap on emissions and thereby increasing the price of emission allowances. This would maintain aggregate demand in the regional economy while creating the correct price incentive for reducing demand for electricity. More specifically, a cap-and-dividend program might be the best way to manage the tension between two important objectives. On the one hand, the GGRA law requires that the Plan to reduce GHG emissions should have "No adverse impact on the reliability and *affordability* [emphasis added] of electricity and fuel supplies" (p. 41). On the other hand, especially in the medium-to-long run, reducing GHG emissions will require increasing the price of carbon-based electricity relative to the price of low- or no-carbon sources of energy. A cap-and-dividend program could reconcile these two potentially competing objectives because citizens would have the additional income and Maryland businesses would have additional demand for their goods and services such that both citizens and business could afford higher electricity rates. Politically, such a cap-and-dividend program would therefore likely reduce resistance to the reduction in the RGGI cap.

However, it is not practical to create a cap-and-dividend program until proceeds from the auction allowances on a per capita basis are much larger than at present. Since RGGI's first auction in 2008, total proceeds have been about $891 million, which amounts to less than $6 per year per person in the RGGI states.[4] Even if the proceeds could be distributed to citizens very efficiently, it is not likely to be administratively cost-effective to distribute such a small per capita dividend. But, as RGGI moves forward in reducing the cap on regional emissions and increasing auction proceeds, which it must do in order to have a significant impact on emissions, the potential per capita dividend will likely become large enough to justify the administrative cost of distribution.

Furthermore, it would not be desirable in the near-term to divert the auction proceeds from their current uses. For the RGGI states as a whole, about 63% of auction proceeds have been invested in programs, such as Maryland's EmPower program, to improve energy efficiency and to accelerate deployment of renewable energy technologies.[5] There is very strong justification for such uses of the proceeds: as stated on the RGGI website, "reinvestment of auction proceeds in energy efficiency and renewable energy programs allow cap-and-trade programs to address CO2 emissions at both the supply side (power plants) and the demand side (energy use), delivering emission reductions at lower cost." Specifically, in Maryland, the auction proceeds are placed in the Strategic Energy Investment Fund (SEIF), which provides funding for energy efficiency and renewable energy programs. These on-going programs are critically important components of the Plan.

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legislation for national cap-and-dividend program—the CLEAR Act sponsored by Senators Cantwell and Collins, see the blog by the Chesapeake Climate Action Network (CCAN) at http://www.chesapeakeclimate.org/resources/cap-and-dividend-policy-updates.

[4] Because New Jersey has withdrawn from RGGI, these figures exclude the proceeds from auctions by New Jersey and exclude the New Jersey population from the per capita estimate.

[5] See RGGI Inc,. "Investments of Proceeds from RGGI CO2 Allowances," February 2011. http://www.rggi.org/docs/Investment_of_RGGI_Allowance_Proceeds.pdf.

Nevertheless, as the RGGI emissions cap is reduced and auction proceeds increase, it is likely that available proceeds will eventually exceed the funding requirements for public investments in energy efficiency and renewable energy. The intent of such programs is not to fully finance all such economically justified investments but only to improve public awareness of the net benefits of such investments, build private sector capacity to implement them, and, at least for some time, provide just enough subsidy to induce private agents to undertake these investments. As these goals are achieved, at some point in the future, the need for public financing for these investments will diminish.

Key Questions for the Proposed Study

With these considerations in mind, the proposed study might usefully focus on these key questions:

1. What are plausible, alternative scenarios for the growth of proceeds from Maryland's auction of RGGI allowances?
2. What are the projected public funding requirements over the next decade for programs to encourage energy efficiency and expansion of renewable energy within Maryland?
3. What are alternative guiding principles for the distribution of auction proceeds as dividend payments to Maryland citizens (e.g., equal per capita distributions versus targeted distributions)?
4. What are possible administrative mechanisms by which a substantial share of auction proceeds could be distributed to Maryland citizens, and how do these possible mechanisms compare in terms of administrative cost-effectiveness, economic impacts, and political acceptability?
5. Taking into account the answers to the above questions, is there likely to be some point in the future when it would be desirable for Maryland to switch at least a significant share of its auction proceeds into a dividend program?

As written, these questions presume that the study would focus only on Maryland and its future use of proceeds from its auction. Of course, if other RGGI states become interested, it would be appropriate to complement the Maryland study by a regional study.[6]

Maryland's Rationale for Undertaking this Study

Among the RGGI states, Maryland has the strongest rationale for undertaking this study because it is already a pioneer in the distribution of auction proceeds to citizens. Under the legislation that authorized Maryland's participation in RGGI and guides the uses of Maryland's auction proceeds, a significant share of those proceeds are committed to the Electric Universal

[6] As indicated in the draft Plan (p. 144), in 2012, the RGGI states will undertake a comprehensive program review, which will include an evaluation of the existing emissions cap and consideration of various options to strengthen the program." Ideally, the RGGI states jointly might launch a study of the possibility of eventually transforming RGGI into a cap-and-dividend program. However, this note presumes that there is not yet sufficiently broad interest in such a study and therefore that Maryland would need to take the initiative for such a study within the framework of its GRRA Plan.

Service Program (EUSP), which provide electric bill payment assistance to low-income consumers across the state. Among the RGGI states, this is by far the largest program involving the distribution of auction proceeds to citizens. The proposed study could include a review of the EUSP to date and could consider the implications of the EUSP experience for future expansion of distribution of auction proceeds to citizens.

However, the proposed study should not limit itself to consideration of a distribution mechanism such as the EUSP. The EUSP pays a portion of the electric bill only for eligible low-income households. Despite its obvious merits, this has potential disadvantages: first, such a "means-tested" program probably has a higher administrative cost per capita than a program without means-testing; second, any means-tested program might attract less political support than a program in which all citizens or households receive a dividend payment; and third, any payment that in fact or in perception offsets the cost of electricity would have the undesirable effect of subsidizing electricity consumption rather than the desired effect of providing untied income.

Implementing the Proposed Study

It seems most appropriate that the Maryland Department of the Environment (MDE) would be take the lead in the proposed study given that it has overall responsibility for RGGI implementation as well as responsibility for Program Analysis, Goals and Overall Implementation of the Plan. It would be important to involve the Maryland Energy Administration (MEA) given its responsibility for the EmPower program and programs to encourage renewable energy production. It would also seem useful to involve independent consultants in the study who are best able to make objective assessments of the existing programs and their requirements over the longer term.

Concluding Remark on Maryland Leading by Example

As stated in the draft Plan (p. 3), "Through the adoption and implementation of a robust State climate action Plan, Maryland can lead the nation by example." The proposed study could be an important vehicle by which Maryland provides leadership on climate action by laying the groundwork for a very significant innovation in the RGGI and perhaps eventually in cap-and-trade programs around the world.

[7] See RGGI Inc. *op. cit*. at http://www.rggi.org/docs/Investment_of_RGGI_Allowance_Proceeds.pdf

Response:

1) Maryland is participating in a stakeholder process currently occurring to revise the RGGI program. The Plan includes information about tightening the cap, but at this time more information will be included after the external stakeholder process comes to a conclusion.

2) Revenue gained from the RGGI program is quite small compared to the number of participants in the program. Thus, it has been found that the money from this program is better used on energy efficiency. The Plan will not include a feasibility study, as it would be

an inappropriate venue for the study. A feasibility study could be conducted in the state of Maryland as a part of the RGGI stakeholder process.

3) The chapters on Climate Change have been edited and updated in the final Plan.

Commenter: Elizabeth Singer

Cutting carbon emissions from fossil fuels is one of the most important actions that state government working with NGO's and the private sector can take today and in future years and decades. Collectively, we must attempt to slow climate warming and the resulting damage to our food supply, water, air and land.

Thank you for holding town hall meetings for the public to question and comment on the Maryland Greenhouse Gas Reduction Plan. I attended the Town Hall in Silver Spring on July 17 and found it extremely informative and consequential. The draft plan is excellent, but it should be strengthened, especially in three areas: the Regional Greenhouse Gas Initiative (RGGI), the Renewable Portfolio Standard (RPS) and EmPower Maryland.

The law calls for reducing GHG emissions to 25 % below 2006 levels by 2020. This goal should be strengthened by including reductions to GHG of 20% below the current emissions levels by 2020. Today's levels are lower and should be locked in.

Also, the plan relies on limiting coal through cap and trade. The substitution of natural gas produced by hydraulic fracturing for coal is not a good value. The associated emissions of methane and of fuel for the fleet of trucks required for at the drilling sites should be counted in the natural gas emissions tracking process.

In the spring 2011 Maryland legislative session, trash incineration was stuck in the Tier 1 category of of the state's renewable energy portfolio, even though it is toxic and contributes to carbon emissions. Incineration should be taken out of Tier 1.

"Black liquor" and wood waste, which emit carbon and other pollutants like smog and ozone, should not receive renewable energy credits.

The Greenhouse Gas Reduction Plan should address the fact that EmPower needs strengthening. For example, I urge you to include ways to get the Public Service Commission to approve utility programs that achieve real savings and reward and penalize poor energy saving performance. Additional ways to finance efficiencies should be made available to ratepayers.

As a citizen of Maryland, I will be urging my Howard County Delegation to approve legislation for Offshore Wind Energy and other legislation to support clean, renewable sources of energy. I urge you to develop the best plan possible to implement the Greenhouse Emission Reduction Act of 2009.

Elizabeth H. Singer
6180 Devon Dr.
Columbia, MD 21044
443-812-2525
Climate Change Initiative of Howard County

Response:

1) In the final Plan, hydraulic fracturing or fracking is addressed in Chapter 6. A State Taskforce is currently evaluating fracking separately from the Greenhouse Gas Reduction Plan. While MDE is concerned about gas emissions from other states effecting Maryland, no programs concerning fracking will commence until the Taskforce has published their report. Further,

given the limited quantity of shale gas located in Maryland, fracking is less unlikely to contribute as significantly to greenhouse gas emissions as compared to neighboring states.

2) Black liquor and wood waste is addressed in the final Plan. With modifications to RPS, there could be increased carbon savings. At this time, the Plan does not recommend changes to RPS, although we recognize that carbon emissions from RPS can directly increase or decrease carbon emissions in the State.

3) Within the Plan itself, EmPOWER Maryland will not be specifically modified. However, EmPOWER Maryland involves a stakeholder process in which issues of incentives and penalties are an ongoing discussion. This program within the Plan will be modified as changes are made to how the program works by the outside stakeholder group.

Commenter: Energy Recovery Council

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August 17, 2012

Ms. Kathy M. Kinsey
Deputy Secretary for Operations
and Regulatory Programs
Maryland Department of the Environment
Office of the Secretary
1800 Washington Boulevard
Baltimore, MD 21230-1718

RE: Comments on Maryland's Plan to Reduce Greenhouse Gas Emissions, December 31, 2011

Dear Deputy Secretary Kinsey:

On behalf of the Energy Recovery Council (ERC), I am providing the following comments on Maryland's draft Plan to Reduce Greenhouse Gas Emissions, dated December 31, 2011. Waste-to-energy has been recognized around the world as an important tool in reducing greenhouse gas emissions. Unfortunately, the draft plan fails to recognize the importance of waste-to-energy in reducing greenhouse gas emissions and includes basic errors in determining the impact of the waste management sector on Maryland's greenhouse gas profile.

ERC represents companies and local governments engaged in the nation's waste-to-energy sector. There are 86 waste-to-energy facilities in the United States which produce clean, renewable energy through the combustion of municipal solid waste in specially designed power plants equipped with the most modern pollution control equipment to clean emissions. Trash volume is reduced by 90% and the remaining residue is safely reused or disposed in landfills. The 86 waste-to-energy plants in the nation have a baseload electric generation capacity of approximately 2,700 megawatts and process more than 28 millions tons of trash per year.

There are three waste-to-energy facilities operating in Maryland (Baltimore, Dickerson, and Joppa). These three facilities process more than 4,400 tons of trash per day and have a baseload electric generating capacity of more than 120 megawatts. In addition, two more facilities are being developed Baltimore and Frederick. In part due to the law signed by Governor O'Malley on May 17, 2011 which elevated waste-to-energy to a Tier 1 renewable in the state's renewable portfolio standard, Maryland is recognized as one of the state's that has the greatest understanding of the benefits of waste-to-energy.

The December 31, 2011 report appropriately discusses the role waste management can play in mitigating greenhouse gases. Unfortunately, it draws some fundamentally flawed conclusions based on inaccurate information. Using a life cycle analysis, waste-to-energy is not the largest contributor of greenhouse gases in the waste management sector. Rather, waste-to-energy is part

of the solution to reducing greenhouse gases. This has been substantiated by experts around the world. For example, the World Economic Forum in its 2009 report, "Green Investing: Towards 2
a Clean Energy Infrastructure," identifies waste-to-energy as one of eight technologies likely to make a meaningful contribution to a future low-carbon energy system.

Experience shows that WTE is the principal alternative to landfilling post-recycled MSW. Without WTE capacity, jurisdictions across the U.S. and the world have had to rely on disposal of MSW, landfilling millions of tons of it which subsequently generates high volumes of methane. The section on waste management on page 77 of the draft report shows an inverse relationship of waste-to-energy on greenhouse gas emissions. Figure 3-12 shows that landfills have no baseline GHG emission in 2006. This is clearly an error. EPA data shows that landfills are the largest source of methane in the United States, and that methane is 23 times more potent that carbon dioxide. The figures for waste-to-energy in Figure 3-12 are also very inconsistent (and much higher) than those found in EPA's Greenhouse Gas Data Publication Tool found on the U.S. EPA website. According to that tool, 24 landfills in Maryland emitted 1.3 million metric tonnes of CO2e in 2010. By comparison, the 3 waste-to-energy facilities in Maryland emitted 0.53 million metric tonnes in 2010. Both figures exclude biogenic CO2 emissions, since biogenic CO2 has a carbon dioxide equivalent weight of zero.

In addition, the ERC believes that the State of Maryland should take into consideration life cycle analyses when analyzing greenhouse gas emissions. Using a life cycle approach, waste-toenergy is demonstrated to be the best waste management option for both energy and environmental parameters and specifically for greenhouse gas emissions. Life cycle studies have shown that one ton of greenhouse gases are avoided for every ton of trash processed at a wasteto-energy facility. Applied to Maryland's waste-to-energy facilities that are processing approximately 1.6 million tons of trash per year, waste-to-energy facilities prevent the release of approximately 1.6 million tons of carbon dioxide equivalents that would have been released into the atmosphere annually if waste-to-energy was not employed.

Waste-to-Energy reduces greenhouse gas emissions

To elaborate further, waste-to-energy achieves the reduction of greenhouse gas emission through three separate mechanisms: 1) by generating electrical power or steam, waste-to-energy avoids carbon dioxide (CO2) emissions from fossil fuel- based electrical generation; 2) the waste-toenergy combustion process effectively avoids all potential methane emissions from landfills, thereby avoiding any potential release of methane in the future; and 3) the recovery of ferrous and nonferrous metals from municipal solid waste by waste-to-energy is more energy efficient than production from raw materials.

These three mechanisms provide a true accounting of the greenhouse gas emission reduction potential of waste-to-energy. A life-cycle analysis, such as the U.S. Environmental Protection Agency's Municipal Solid Waste Decision Support Tool, is the most accurate method for understanding and quantifying the complete accounting of any waste management option. A life-cycle approach should be used to allow decision makers to weigh and compare all greenhouse gas impacts associated with various activities and management options.

The Decision Support Tool is a peer-reviewed tool1 that enables the user to directly compare the energy and environmental consequences of various management options for a specific or general

1 Available through US EPA and its contractor RTI International.

situation. Technical papers authored by EPA2 report on the use of the Decision Support Tool to study municipal solid waste management options.

These studies used a life-cycle analysis to determine the environmental and energy impacts for various combinations of recycling, landfilling, and waste-to-energy. The results of the studies show that waste-to-energy yielded the best results—maximum energy with the least environmental impact (emissions of greenhouse gas, nitrogen oxide, fine particulate precursors, etc.). In brief, waste-to-energy has been demonstrated to be the best waste management option for both energy and environmental parameters and specifically for greenhouse gas emissions. When the Decision Support Tool is applied to the nationwide scope of waste-to-energy facilities that are processing 28 million tons of trash, it has been shown that the waste-to-energy industry prevents the release of approximately 28 million tons of carbon dioxide equivalents that would have been released into the atmosphere if waste-to-energy was not employed.

International Recognition of Waste-to-Energy

The ability of waste-to-energy to prevent greenhouse gas emissions on a life-cycle basis and mitigate climate change has been recognized in the actions taken by foreign nations trying to comply with Kyoto targets.

The Intergovernmental Panel on Climate Change (IPCC), the Nobel Prize winning independent panel of scientific and technical experts, has recognized waste-to-energy as a key greenhouse gas emission mitigation technology.

The World Economic Forum in its 2009 report, "Green Investing: Towards a Clean Energy Infrastructure," identifies waste-to-energy as one of eight technologies likely to make a meaningful contribution to a future low-carbon energy system.

In the European Union, waste-to-energy facilities are not required to have a permit or credits for emissions of CO2, because of their greenhouse gas mitigation potential. In the 2005 report, "Waste Sector's Contribution to Climate Protection", the German Ministry of the Environment stated that "…waste incineration plants and co-incineration display the greatest potential for reducing emissions of greenhouse gases." The report concluded that the use of waste combustion with energy recovery coupled with the reduction in landfilling of biodegradable waste will assist the European Union-15 in meeting its obligations under the Kyoto Protocol. In a 2008 briefing, the European Environment Agency attributes reductions in waste management greenhouse gas emissions to waste-to-energy.

Under the Kyoto Protocol, by displacing fossil fuel-fired electricity generation and eliminating methane production from landfills, waste-to-energy plants can generate tradable credits (Certified Emission Reductions [CERs3]) through approved Clean Development Mechanism

2 *"Moving From Solid Waste Disposal to Management in the United States," Thorneloe (EPA) and Weitz (RTI)*
October, 2005, and "Application of the U.S. Decision Support Tool for Materials and Waste Management,"
Thorneloe (EPA), Weitz (RTI), Jambeck (UNH), 2006

3 CDM protocol (AM0025 v7) and associated memorandum, "Avoided emissions from organic waste through
alternative waste treatment processes."
4
protocols. These CERs are accepted as a compliance tool in the European Union Emissions Trading Scheme.

In summary, waste-to-energy is recognized as a greenhouse gas mitigation technology that is eligible for offsets through independent approved protocols. Treatment of waste-to-energy as a source of greenhouse gas emissions would be inconsistent with internationally accepted science and accounting procedures. Just as importantly, it would put the United States at a disadvantage in meeting CO2 reduction targets because an important tool used by other countries would not be available domestically.

Domestic Recognition of Waste-to-Energy

The ability of waste-to-energy to reduce greenhouse gas emissions has been embraced domestically. The Nature Conservancy (TNC) has an August 2011 feature on their website which helps explain how and why trash should help solve our energy problems. Joe Fargione, lead scientist with the TNC's North America Region said, "There is no silver bullet for solving the problem of producing renewable energy, but waste-to-energy can be an important part of the solution**.** Waste from energy is not only renewable, it avoids putting the waste into landfills that produce methane gas, a greenhouse gas 23 times more potent than carbon dioxide. Therefore, waste-to-energy provides significant greenhouse gas emission reduction benefits." (http://www.nature.org/ourscience/sciencefeatures/ask-the-conservationist-august-2011.xml). This is a widely recognized position.

The ability of waste-to-energy to reduce greenhouse gas emissions has been embraced domestically as well. The U.S. Conference of Mayors adopted a resolution in 2004 recognizing the greenhouse gas reduction benefits of waste-to-energy. In addition, the U.S. Mayors Climate Protection Agreement supports a 7 percent reduction in greenhouse gases from 1990 levels by 2012. The Agreement recognizes waste-to-energy technology as a means to achieve that goal. As of the date of this letter, more than 1,000 mayors have signed the agreement.

The Global Roundtable on Climate Change (GROCC), convened by Columbia University's Earth Institute, issued a statement on February 20, 2007 identifying waste-to-energy as a means to reduce CO2 emissions from the electric generating sector and methane emissions from landfills. The GROCC, which brought together high-level, critical stakeholders from all regions of the world, recognized the importance of waste-to-energy's role in reducing greenhouse gas emissions. The breadth of support for the GROCC position is evidenced by those that have signed the joint statement, including Dr. James Hansen of the NASA Goddard Institute for Space Studies, as well as entities as diverse as American Electric Power and Environmental Defense.

The Lee County (FL) waste-to-energy facility has been certified by the Voluntary Carbon Standard to generate carbon offsets which can be sold to those entities wishing to acquire carbon credits. The credits are based on electricity generated by the new capacity added by a recent expansion of its waste-to-energy facility. By emitting less greenhouse gases than its alternatives, the county has banked more than 80,000 carbon credits. Lee County's waste-to-energy plant is the first in the nation to sell its own carbon credits on the voluntary market. The money generated by these credits will go to offset garbage collection fees.

Conclusion
In closing, waste-to-energy is a critical tool in reducing greenhouse gases from the solid waste sector. The draft Maryland plan should be corrected to reflect accurate comparisons between waste-to-energy and landfills. In addition, the ERC believes that life cycle analysis is the most accurate method with which to analyze greenhouse gas emissions in the waste sector. Without taking such analyses into account, policy makers will be drawing conclusions based on less the all the relevant facts. Please contact me if you have any questions regarding our comments, and thank you for your consideration.

Sincerely,

Ted Michaels
President

Response:

1) Waste to energy
    a) The final Plan includes significant updates including a new waste to energy section in Chapter 6. This section discusses the potential benefits of using a waste to energy program. There will be further examination of waste to energy as a mechanism to reduce greenhouse gas emissions, and the Plan itself is a working document that can still change.
    b) Life cycle effects could be added to every part of the Plan, but as of right now, this is a huge struggle to include due to conflicting views of different stakeholders. However, there are key areas where this program is becoming more prevalent, especially in clean fuel and natural gas benefits in the power sector. Although a life cycle approach is not included as part of the programs outlined in the final Plan, including life cycle approaches to reducing greenhouse gases will be explored more in the future.

Commenter: Environment Maryland Research & Policy Center

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August 2012

Comments on Maryland's Draft Greenhouse Gas Reduction Plan

Environment Maryland Research & Policy Center thanks the Maryland Department of the Environment for the opportunity to comment on *Maryland's Plan to Reduce Greenhouse Gas Emissions* (hereafter, the "draft plan") and for MDE's work implementing a number of key policies to reduce emissions in the state.

The Greenhouse Gas Emissions Reduction Act (GGRA) requires the adoption of a plan to achieve at least a 25 percent reduction in statewide greenhouse gas emissions by 2020, complete with "adopted regulations that implement all plan measures for which state agencies have existing legislative authority" and "a summary of any new legislative authority needed" to achieve the goals of the plan. A credible, well-designed, actionable plan in 2012 is necessary if Maryland is to achieve the goals of the GGRA – particularly given the lead time needed for the development and implementation of the necessary policies.

We recognize that the task of compiling a plan of this scale and technical complexity is a massive undertaking and understand that the draft plan submitted for comment by MDE is a "work in progress" and that technical analysis continues. However, the draft plan fails to provide confidence that Maryland is "on track" to achieve the goals of the GGRA. The emission reduction strategy described in the main body of the draft plan represents a "best-case scenario" for emission reductions that will succeed only if nearly all the policies envisioned in the plan are implemented faithfully and on-schedule, and if each policy delivers close to the maximum amount of potential emission reductions. Moreover, the draft plan, in its current form, fails to incorporate key changes that have significantly altered patterns of energy consumption since 2006, making it difficult to evaluate whether the proposed policies will achieve the intended results.

We urge that the draft plan be revised to present more realistic estimates of emission reductions from each policy, reflect up-to-date information, and better articulate what additional steps the state needs to take to achieve its goal.

With this information before them, elected officials, policymakers and the public will have the opportunity to consider what policy changes are needed to facilitate meeting Maryland's 2020 greenhouse gas reduction goals.

Environment Maryland Research & Policy Center has the following specific recommendations.

1. Present a more balanced appraisal of the emission reduction potential of various policies.

The draft plan should be revised to include a more balanced portrayal of the potential emission reductions from the policies.

The main body of the draft plan lays out estimated emission reductions resulting from each of the 65 policies and tallies the "potential" emission reductions from those policies, concluding that the programs "if implemented successfully" will achieve the 25 percent emission reduction goal. That conclusion, however, rests on an extremely optimistic view of the analysis presented in Appendix C of the plan, which provides a range of potential emission reductions for each policy. Whereas the main body of the report presents data suggesting that the policies will deliver emission reductions of 82 $MMTCO_2e$ (before accounting for overlap among policies), Appendix C presents a range of 45 to 82 $MMTCO_2e$ in expected emission reductions. Should Maryland achieve only the lower bound estimate of emission reductions, the state could fall far short of meeting the goals of the GGRA – even if action is taken in all 65 areas of policy described in the plan.

To ensure that the goals of the GGRA are met, Maryland's greenhouse gas plan must include realistic and balanced assumptions about both the likelihood that various policies will be fully implemented and the changes those policies will deliver in emission reductions.

At minimum, we recommend that MDE present the conservative, lower-bound estimate of emission reductions alongside the upper-bound estimate in the main body of the revised plan – a step that will accurately communicate to the public and decision-makers the need for strong action to reduce emissions in order to meet the goals of the GGRA. Ultimately, Maryland should plan for and adopt policies sufficient to ensure that goals of the GGRA are met even if all "potential" emission reductions fail to materialize.

2. Provide greater clarity on the impact of steps already taken and the need for additional policy action.

The current draft of the plan fails to distinguish clearly between expected reductions from existing policies and steps yet to be taken. This has the potential to create the misimpression that Maryland is farther along in its emission reduction efforts than is actually the case.

For example, the 17.7 $MMTCO_2e$ savings projected from the Regional Greenhouse Gas Initiative (RGGI) in the main body of the report is based on an assumption that the program will be improved to deliver additional emission reductions beyond those currently required. Nowhere in the main body of the report is this made clear; a reader must turn to Appendix C for clarification. The presentation of this "upper bound" estimate of savings from RGGI leaves the impression that Maryland will achieve 17.7 $MMTCO_2e$ in savings as a result of its current participation in the program when, in reality, strengthening of the RGGI emission cap will likely only occur as a result of vigorous and sustained advocacy by the state of Maryland in cooperation with other northeastern states.

Another instance in which the draft fails to distinguish between hoped-for emission savings and savings that are likely to be achieved regards EmPOWER Maryland. The draft plan assumes full compliance with the 2015 goals of EmPOWER Maryland, and expansion of the program after that. Not only is the assumed expansion of the program hardly referenced, but no mention is made of the fact that progress toward the existing EmPOWER Maryland goals is severely lagging. In calculating its estimate of savings from EmPOWER Maryland, SAIC assumes that the state has reduced per capita electricity consumption by 7 percent in 2012 (halfway to the 2015 goal),

an assumption that is not supported by utilities' filings with the Public Service Commission or by data presented in Appendix C starting on p. 53.

Environment Maryland Research & Policy Center is encouraged by the inclusion of steps such as the expansion of RGGI and extension of EmPOWER Maryland in the draft plan. It is important, however, that the public understand that such steps are key components of any realistic plan to meet the state's greenhouse gas reduction goals.

3. Revise the business-as-usual scenario to reflect developments since 2006.

Since 2006, there have been significant shifts in energy consumption patterns in the United States, resulting from technological changes, government policies, the recent economic downturn, and shifting prices for fossil fuels. The draft plan submitted by MDE fails to reflect many of these important shifts. While we understand that the business-as-usual forecast of GHG emissions will be revised for the final plan, the importance of using up-to-date assumptions in evaluating the policies proposed in the plan cannot be overstated, for several reasons:

1. The use of up-to-date assumptions on energy use will enable creation of a more accurate baseline forecast against which to compare policies Maryland implements.
2. It will enable more accurate estimation of the emission reduction potential of various policies, providing the tools for decision-makers to prioritize policies based on their emission reduction potential.
3. It will enhance the credibility of the document and of Maryland's greenhouse gas reduction efforts more generally.

The two clearest examples of how the business-as-usual (BAU) scenario in the draft plan deviates from reality are in electricity generation and on-road travel. Emissions from in-state electricity generation since 2006 are very different than those described in the BAU scenario of the draft plan. In the draft plan, emissions from in-state generation are shown to rise from 2006 to 2010, with the biggest jump coming from coal-fired power plants with a 19 percent increase in emissions. However, this doesn't correspond to what happened in reality. From 2006 to 2010, carbon dioxide emissions from coal-fired power plants declined by 17 percent.[1] That change was much more the result of the economic downturn than any policies adopted by Maryland.

In addition, recent evidence suggests that the projected growth in vehicle miles of travel (VMT) of 1.8% from 2006 to 2020 is an overestimate, which will result in an overestimate of emissions from transportation in the BAU scenario. The use of historic VMT trends from 1990 to 2006 to forecast future VMT is likely to dramatically overstate travel as a result of a shift in driving patterns that has occurred nationwide and in Maryland since 2006 due to economic conditions, gasoline prices and other factors. The

[1] U.S. Department of Energy, Energy Information Administration, State Electricity Profiles 2010.

actual annual VMT growth rate in Maryland from 2006 to 2010 was slightly negative.[2] As a result, VMT would need to grow at a rate significantly greater than 1.8% per year from 2010 through 2020 to fulfill the BAU forecast. By way of comparison, the U.S. Energy Information Administration, in its latest *Annual Energy Outlook*, projects that light-duty VMT nationally will increase by an average of only 0.8% per year between 2010 and 2020. While there may be reasons why Maryland could be

expected to have a rate of VMT increase greater than the national average, there is little compelling reason to believe that VMT will grow at a rate significantly above 1.8% over the next decade. Another input to the baseline that needs to be updated is population projections. Some of the population data current in the baseline are from 2007. These projections do not match the 2010 Census, or March 2012 projections from the Maryland Department of Planning.3
It is unclear whether the total effect of these revisions would be to increase or decrease the likelihood that the emission reduction policies in the draft plan will achieve the emission reduction goal of the GGRA. A credible plan, however, must include these significant changes in energy use in Maryland if it is to instill confidence that the anticipated emission reductions will actually materialize.

4. Update the overlap analysis.

Many of the policies in the draft plan overlap one another in their impacts on energy use. The current methodology in the draft plan for the overlap calculation is not clear, but a comparison between the main report and SAIC's analysis suggests the overlap estimate in the main report may be too low. SAIC assumes a 41 percent overlap for the residential, commercial, industrial and electric sector policies they modeled, compared to a 22 percent overlap of all policies in the main report. We understand that a revised overlap analysis will be completed for the final plan and hope that it will be robust.

5. Consider additional revisions.

1. The BAU scenario in the draft plan assumes a decrease in global warming emissions from natural gas production. That will hold true only if hydraulic fracturing does not become common in Maryland. Environment Maryland Research & Policy Center recommends that a **ban on natural gas fracking** be included as a specific policy step that the state should take to ensure it achieves its greenhouse gas emission reduction goals.

2. The plan should include a **margin of error** to account for policies that do not get implemented. Some of the policies that MDE has included in its plan, though they are sound policy ideas, have either moved slowly or not at all since the first discussions began in Maryland regarding options for reducing emissions. For example, there has been relatively little motion on policies related to pay-as-you-drive automobile insurance since 2008, and legal challenges have slowed

[2] U.S. Department of Transportation, Federal Highway Administration, Office of Highway Policy Information, Highway Statistics 2010.
[3] Maryland Department of Planning, Historical and Projected Household Population for Maryland's Jurisdictions (spreadsheet), 27 March 2012. Available at http://www.mdp.state.md.us/msdc/s3_projection.shtml.

development of a clean fuel standard. If a few policies are not implemented, including a margin of error in the analysis would nonetheless allow the state to achieve its emissions reduction target.
In summary, Environment Maryland Research & Policy Center applauds MDE and other state agencies and staff for the efforts made to reduce greenhouse gas emissions and to develop the draft plan. We support the policy vision laid out in the draft plan, which, if implemented, would not only reduce greenhouse gas emissions, but would also reduce Maryland's dependence on fossil fuels and improve the quality of our environment. However, the draft plan does not create a sense of

confidence that Maryland is "on track" to achieve the emission reduction goals of the GGRA. With so little time remaining to adopt policies that will have a meaningful impact on emissions prior to 2020, Maryland needs a plan based on realistic assumptions, up-to-date information, and a clear sense of the required tasks if we are to achieve the goals of the GGRA and do our share to protect our state from the worst impacts of global warming.

Sincerely,

Tommy Landers
Director

Response:

1) The final Plan has been updated to include a balanced appraisal of emission reductions. There will no longer be a range of expected emission reductions, but one final number for total emission reductions will be provided. This expected emission reduction amount is the State's best estimate of what greenhouse gas reductions will be in 2020.

2) The edits in Chapter 6 of the final Plan will include information on the steps already taken toward reducing greenhouse gas emissions. The programs included in the Plan are tools that can be used to reduce greenhouse gas emissions, and the greater extent to which these programs are implemented, the greater the reduction potential.

3) Business as usual scenario
   a) We have edited the Plan so that it now represents both the best case scenario of reductions as well as more conservative, lower-bound reduction estimates originally only in the Appendix. These updated estimates are in Chapter 6 of the Plan. Key changes have been made to the Plan's 2006 baseline emissions analysis mandated by GGRA (Greenhouse Gas Emissions Reduction Act of 2009). The 2020 business-as-usual (BAU) emissions estimate is being revised for the energy sector. The Plan is a living document and the 2020 BAU estimate will continue to be updated after 2012. The Plan will be reviewed and re-evaluated in the 2015 status report to the legislature as mandated by GGRA.
   b) A very standard growth rate for VMTs was used based on historical data of VMT growth. There will be no revised VMT estimates at this time, as the impact of 1% in only one year will not be as significant as the impacts over multiple years. To be clear, a reduction of over a billion VMTs would have to occur to show a significant change.

4) The overlap analysis has been updated accordingly and the SAIC analysis is included in the final plan as an appendix.

5) Additional Revisions Recommended
    a) In the final Plan, hydraulic fracturing or fracking is addressed in Chapter 6. A State Taskforce is currently evaluating fracking separately from the Greenhouse Gas Emissions Reduction Plan. While MDE is concerned about gas emissions from other states effecting Maryland, no programs concerning fracking will commence until the Taskforce has published their report. Further, given the limited quantity of shale gas located in Maryland, fracking is less unlikely to contribute as significantly to greenhouse gas emissions as compared to neighboring states.
    b) By including the overlap analysis, the updated Plan will adequately include the margin of error of how much greenhouse gas emissions will realistically be reduced. Maryland has been involved in a regional effort in the Northeast to develop a Clean Fuels Standard which considers the life cycle GHG impacts of transportation fuels. The direction and future of the program is currently being re-evaluated. The State has removed any Clean Fuel Credits from the Plan until the program is better defined. Conducting a full life cycle analysis of other programs in the Plan would present tremendous technical, methodological and resource challenges and, other than addressing natural gas benefits in the power sector, is not feasible to include in the Plan at this time.

Commenter: Katelyn Hasz

From: Katelyn Hasz <khasz1@students.towson.edu>
To: <climate@mde.state.md.us>
Date: 8/28/2012 12:29 PM
Subject: GGRA Revisions Needed

Dear Governor Martin O' Malley and Secretary Robert Summers,

Thank you for all your leadership in recent years in fighting climate change in Maryland by promoting clean, renewable energy.

Last month, per the Greenhouse Gas Emissions Reduction Act of 2009, the Maryland Department of the Environment released a draft plan for reducing carbon pollution statewide by 25 percent by 2020. The plan lays out an admirable framework of 65 programs for reducing emissions, involving efforts from many state agencies.

However, the plan has serious shortcomings. It makes unrealistic assumptions about certain pollution cuts. It projects overly rosy timelines for achievements. And – in several instances – it just gets the facts wrong. For example, the plan assumes the state's clean electricity standard has the potential to reduce much more carbon pollution than is realistically possible.

By the end of 2012, MDE and each state agency responsible for implementing the plan must work together to ensure the final GGRA plan is complete with a clear path for implementing programs that will realistically achieve the General Assembly's mandate. All state agencies must be held accountable for this goal.

Cutting carbon pollution will provide great economic benefits to the state if implemented effectively. Maryland's leadership will show our country and the world that climate progress is achievable and brings with it substantial benefits.

Sincerely,

Katelyn Hasz
lachlan Cr
baltimore, MD 21239

Response:

1) The final Plan has been revised to examine the true potential benefits of the programs expressed. The overlap analysis in the final Plan ensures that reduction numbers have not been the result of double counting, and has been updated accordingly. The SAIC analysis is also included in the final plan.

2) MDE has been working closely with the governor as well as other State agencies involved such as, MDoT, MEA, and MDP. The Governor's office is tracking implementation of the plan through the Governor's Delivery Unit (GDU) (https://data.maryland.gov/goals/greenhouse-gases). The Governor has been directly involved in development of the Plan. He has made the Plan into a "stat" process for the state of Maryland, called ClimateSTAT. The Plan itself is a living document that will be changed and edited as the implementation process occurs.

Commenter: Liz Feighner
August 16, 2012

Maryland Department of the Environment
climate@mde.state.md.us

Re: Maryland Greenhouse Gas Emissions Reduction Draft Plan

To Whom It May Concern:
I am writing about Maryland's Greenhouse Gas Emissions Reduction Plan and appreciate the opportunity to comment on this plan. While Maryland has taken climate change seriously by passing the2009 Greenhouse Gas Emissions Reduction Act, there are issues with the current plan that jeopardize the target goal to cut greenhouse gas (GHG) emissions 25 percent below 2006 levels by 2020.

I have several concerns that the plan relies too much on natural gas to meet these goals and does not factor in the negative impact of natural gas on the climate and our natural resources.
While it may look good on paper that burning natural gas instead of coal reduces GHG emissions in Maryland, the plan does not include the impact of drilling for natural gas through a process called hydraulic fracturing, also known as fracking. The methane emissions from fracking are a serious concern and should be factored into the plan even though these emissions occur in other states where fracking is allowed.

Since Maryland currently has a ban on this controversial process and rightly so, Maryland should include the impact of these detrimental emissions in the plan since the entire life cycle of natural gas needs to be considered. Maryland's reliance on natural gas harms states that allow the dangerous practice of fracking and, therefore, the Maryland plan should account for the significant GHG emissions that occur during the fracking process.

I am also concerned that the plan relies on energy sources that are considered Tier 1 renewable energy sources that are actually contributing to dangerous toxic emissions and adding to the GHG emissions. Trash incineration, black liquor and wood waste are not "clean" energy sources and should not be considered as Tier 1. Counting these dirty energy sources as Tier 1 is disingenuous and these sources should not get Renewable Energy Credit (REC) certification.

One of the requirements of the plan is that it must have a positive impact on Maryland's economy and jobs. Maryland developed the Genuine Progress Indicator (GPI) to measure how development activities impact long-term prosperity, both positively and negatively. Traditional indicators like the Gross Domestic/State Products address only economic transactions. They do not include the environmental and social costs or fully appreciate the significant contributions of our natural systems. To truly measure the positive impact that the Maryland's Greenhouse Gas Emissions Reduction Plan will have on Marylanders, the plan should utilize this innovative tool in its calculations.

Thank you for providing the public the opportunity to comment on the Maryland's Greenhouse Gas Emissions Reduction Plan. This is an important plan that needs strengthening in order to truly achieve a real reduction in GHG emissions. Seeing the economic and environmental devastation across the country caused by climate change makes it imperative that Maryland achieve the plan's targeted goals.

Sincerely,

Liz Feighner
10306 Champions Way
Laurel, MD 20723-5745
liz.feighner@gmail.com

"We do not inherit the Earth from our Ancestors: we borrow it from our children." ~ Native American Proverb

Response:

1) In the final Plan, hydraulic fracturing or fracking is addressed in Chapter 6. A State Taskforce is currently evaluating fracking separately from the Greenhouse Gas Reduction Plan. While MDE is concerned about gas emissions from other states effecting Maryland, no programs concerning fracking will commence until the Taskforce has published their report. Further, given the limited quantity of shale gas located in Maryland, fracking is less unlikely to contribute as significantly to greenhouse gas emissions as compared to neighboring states.

2) We agree with this comment and as part of the clean fuel standard, we have looked at life cycle effects. Unfortunately, this program has suffered delays and controversy, because of which, we have eliminated any credits until the program is better defined. We hope to implement this program in the future. Life cycle effects could be added to every part of the Plan, but as of right now, this is a huge struggle to include due to conflicting views of different stakeholders. However, there are key areas where this program is becoming more prevalent, especially in clean fuel and natural gas benefits in the power sector.

3) Black liquor and wood waste is addressed in the final Plan. With modifications to RPS, there could be increased carbon savings. At this time, the Plan does not recommend changes to RPS, although we recognize that carbon emissions from RPS can directly increase or decrease carbon emissions in the State.

4) Genuine progress indicator (GPI)
   a) Gross Domestic Product (GDP) is a commonly used measure, and is a measure that most people understand. The GPI is a State specific measure. Maryland decided to use GDP as a metric to track economic benefit because of its familiarity in the economic world. GDP also provides a more conservative estimate of benefits from the programs. MDE is involved in the GPI process and will continue to work through it if GPI is incorporated in the State government process.

Commenter: Mary Wolfe

Dear Governor Martin O' Malley and Secretary Robert Summers,

Thank you for all your leadership in recent years in fighting climate change in Maryland by promoting clean, renewable energy.

Last month, per the Greenhouse Gas Emissions Reduction Act of 2009, the Maryland Department of the Environment released a draft plan for reducing carbon pollution statewide by 25 percent by 2020. The plan lays out an admirable framework of 65 programs for reducing emissions, involving efforts from many state agencies.

However, the plan has serious shortcomings. It makes unrealistic assumptions about certain pollution cuts. It projects overly rosy timelines for achievements. And – in several instances – it just gets the facts wrong. For example, the plan assumes the state's clean electricity standard has the potential to reduce much more carbon pollution than is realistically possible.

By the end of 2012, MDE and each state agency responsible for implementing the plan must work together to ensure the final GGRA plan is complete with a clear path for implementing programs that will realistically achieve the General Assembly's mandate. All state agencies must be held accountable for this goal.

Cutting carbon pollution will provide great economic benefits to the state if implemented effectively. Maryland's leadership will show our country and the world that climate progress is achievable and brings with it substantial benefits.

Sincerely,

Mary Wolfe
2 Oakridge Court
LuthervilleTimonium, MD 21093

Response:

1) The final Plan has been revised to examine the true potential benefits of the programs expressed. The overlap analysis in the final Plan ensures that reduction numbers have not been the result of double counting, and has been updated accordingly. The SAIC analysis is also included in the final plan.

2) MDE has been working closely with the governor as well as other State agencies involved such as, MDoT, MEA, and MDP. The Governor's office is tracking implementation of the plan through the Governor's Delivery Unit (GDU) (https://data.maryland.gov/goals/greenhouse-gases). The Governor has been directly involved in development of the Plan. He has made the Plan into a "stat" process for the state of Maryland, called ClimateSTAT. The Plan itself is a living document that will be changed and edited as the implementation process occurs.

Commenter: Maryland Association of Counties

MARYLAND ASSOCIATION OF COUNTIES, INC.

August 17, 2012

The Maryland Association of Counties (MACo) submits the following comments to the Maryland Department of the Environment (MDE) regarding the draft version of Maryland's Plan to Reduce Greenhouse Gas Emissions (Plan). MACo recognizes that climate change could pose significant challenges to Maryland and its counties and wishes to acknowledge the significant work and effort of agency staff in the creation of the Plan.

However, MACo is concerned with the lack of specificity and feasibility of several areas of the Plan. MACo's comments fall within four general categories: (1) comments regarding the estimated costs, economic benefits, and results of implementing the strategies proposed in the Plan; (2) specific greenhouse gas (GHG) reduction strategies outlined in Chapter 6 of the Plan that would significantly affect local governments; (3) adaptation strategies outlined in Chapter 8 of the Plan that would significantly affect local governments; and (4) the process that will be used to finalize and potentially implement the Plan.

Cost, Benefits and Results

- *The Plan should estimate the implementation costs of each reduction strategy for the State, local governments, and other key stakeholders.*

The cost of implementing the 65 proposed reduction strategies in Chapter 6 and Appendix C of the Plan is estimated to be $3 billion. While the potential job and economic benefits of the reduction strategies are discussed, the implementation costs that would be borne by the State, local governments, and other stakeholders are not. Just as the Plan estimates the potential economic benefits of each strategy, the Plan should also estimate each strategy's implementation costs.

County governments are already facing significant costs to comply with the federal Chesapeake Bay Total Maximum Daily Load requirements and various state mandates, such as new septic system growth tiers, PlanMaryland planning areas, and stormwater management requirements.

- *The Plan should provide greater cost information for each adaptation strategy for the State, local governments, and other key stakeholders.*

Little cost information for the adaptation strategies discussed in Chapter 8 of the Plan except to assign generic such as "high," "low," and "to-be-determined." As noted in the first bullet, the costs that would be borne by the State, local governments, and other stakeholders should be

estimated to the extent feasible before a commitment is made to implement the adaptation strategy.

- *The Plan should address how the reduction strategies will affect climate change in Maryland.*

The Plan highlights climate change as the chief reason to reduce GHGs and Chapter 4 of the Plan highlights the "cost of inaction" if climate change is not addressed. Chapter 5 of the Plan discusses ancillary benefits of reducing GHGs, including improvements to the health of the Chesapeake Bay, public health, and air quality. However, the Plan does not quantify how the reduction strategies will actually affect climate change.

- *Further analysis of the potential economic and job impacts of the reduction strategies should be undertaken.*

A preliminary economic analysis conducted by Towson University's Regional Economic Studies Institute (RESI) estimates that if all 65 of the Plan's proposed reduction strategies are implemented the result will be the creation of approximately 36,000 jobs, $6.1 billion in additional economic output, and $2.1 billion in additional wages. According to RESI, for every $1 million invested in the reduction strategies, 15 jobs will be created with an economic output of $1.8 million and $0.6 million in wages.

While acknowledging that the findings are preliminary, the Plan dedicates an entire chapter (Chapter 7) to the RESI study. Based on the prominence given to the RESI study, further analysis of the potential job and economic development impacts should be undertaken. If feasible, economic impacts and benefits should be mapped to a regional or county level.

GHG Reduction Strategies

MACo's initial comments regarding the 65 proposed reduction strategies will focus on three specific strategies. Ultimately, MACo may have additional concerns regarding other potential strategies as further detail is provided.

- *The economic feasibility of increasing recycling goals, especially for rural counties, should be examined before setting new recycling goals for county governments under the Recycling – 1 strategy.*

The Recycling – 1 strategy discusses recycling and source reduction and contemplates increased recycling rates for county governments. While a robust and economically viable recycling program can result in many benefits, including GHG reduction, recycling is heavily dependent on raw material costs and population density in order to be profitable. For most Maryland counties, recycling does not generate a net profit and instead constitutes an unfunded state mandate. Rural counties, with smaller populations and longer travel distances, are particularly challenged as the lack of a viable market precludes interest from most recycling vendors. MDE should consider the economic feasibility of any proposed recycling goal increases and identify funding sources necessary to hold counties where recycling is unprofitable harmless.

- *County governments should not be subject to a vehicle miles traveled (VMT) target under Land Use – 1 strategy.*

The Land Use – 1 strategy would require local governments to use their land use planning and zoning authority to "require a significant adjustment of land use patterns away from automobile-oriented development." Furthermore, "[the Maryland Department of Planning (MDP) and sister agencies will investigate the feasibility in Maryland of implementing California's Senate Bill 375 bill and will develop sustainability criteria (e.g., a decrease or no net increase in VMTs) that local transportation plans and projects must achieve in order to receive State transportation funds." (Both quotes from page 253 of the Plan.)

MACo opposes VMT targets for county governments. There are many reasons behind where people choose to live and work and how they travel, including attachment to a particular geographic area or lifestyle, family location, housing affordability, and job location. The ability of a county government to influence these choices through the comprehensive planning and zoning process is limited and the Land Use – 1 strategy should be removed from the Plan.

Mass transit options are not (and realistically will not be) available in many regions of the state. Additionally, counties have little ability to control "pass through" traffic that travels through a particular jurisdiction in order to reach a destination outside of the jurisdiction.

In addition, the Maryland Department of Transportation (MDOT) has long been the primary state agency associated with transportation planning. Yet the Land Use – 1 strategy casts MDP as the lead agency. MACo questions why the transfer of a longstanding MDOT responsibility to an agency that has not previously held a major transportation oversight role is necessary.

- *County governments and metropolitan planning organizations (MPOs) should not be subject to GHG targets under the Land Use – 2 strategy.*

The Land Use – 2 strategy would establish GHG transportation and land use planning goals for local governments and metropolitan planning agencies. While initially voluntary, such goals could easily become mandatory. MDE is in the process of vetting regulations to assign GHG emission targets and reporting requirements for certain MPOs. Both the Baltimore Regional Transportation Board and the National Capital Transportation Planning Board, along with county transportation and MDOT officials have expressed concerns over the propriety and feasibility of the regulations. Unless current MPO and county concerns can be addressed, the Land Use – 2 strategy should be removed from the Plan.

Adaptation Strategies

- *The Plan should more clearly highlight the potential responsibilities that will be placed on county governments under the proposed adaptation strategies.*

Chapter 8 of the Plan states that Maryland is already experiencing the effects of climate change and that a series of adaptation strategies should be implemented to offset its future effects. Some

of the strategies would clearly require significant county government commitment and resources but lack necessary specificity. Other strategies, however, are so vague that the effect on county governments cannot even be estimated.

For example, a recommendation under the section on sea-level rise would require the integration of sea-level rise adaptation and response planning strategies into existing local policies and programs, including modifications to building codes and construction techniques. A recommendation under the human health section would require the local planning practices to improve health response capacity through the development of new or expanded programs. While clearly indicating some level of county government funding and programmatic changes, more information is needed before counties can truly comment on their costs and impacts.

Other key recommendations involve potentially significant changes to water resource, infrastructure, and population management. However, many of these recommendations are vague and lack specificity. For example, MDE proposes to "manage water through the lens of future climate and population." MDP proposes to "explore incentives to promote sound planning practices." Without having a better understanding of the impacts of the proposed adaptation strategies on county governments, it is difficult to comment on the strategies in a meaningful way.

Process

- *The ongoing process to develop reduction and adaptation strategies should be open and collaborative and proactively include county governments and other key stakeholders.*

The Plan states that Maryland's response to climate change "must be a highly integrated process that occurs on a continuum, across all levels of government, involving many internal and external partners and individual actions…" (Pages 315 and 317.) Many of the proposed strategies in the Plan will require significant policy changes and resource investment by local governments and other stakeholders but were developed without their participation and input.

Such participation needs to go beyond simply commenting on a series of strategies developed exclusively by the State. Stakeholders should be part of an ongoing process to develop, refine, and accept or reject both reduction and adaptation strategies. Funding sources should also be identified where the strategies envision new county government spending. Otherwise, the Plan will face the same unresolved challenges as the Chesapeake Bay TMDL process. A realistic timeframe for consideration and implementation of the strategies should also be established.

Conclusion

MACo appreciates the opportunity to comment on the Plan and hopes that the concerns of MACo and other comments submitted by the counties are addressed prior to the final adoption of the Plan. Given the complexity and potential consequences of climate change, time should be allowed for stakeholders to fully debate and review the Plan before it is finalized. Additionally,

amendments to the he draft Plan should be developed as part of a collaborative process and not be driven by a top-down "one-size-fits-all" approach.

For further information regarding MACo's comments on the Plan, please contact Legal and Policy Counsel Les Knapp at 410.269.0043 or lknapp@mdcounties.org.

Response:

1) Costs, Benefits and Results
   a) The final Plan will include significant updates to the implementation costs, particularly in RESI's economic analysis in Chapter 7 and the Appendix. Transportation sector implementation costs can also be found in the transportation policy summaries in Chapter 6. Implementation costs developed by RESI and MDOT are estimates only. The Plan itself does not begin the implementation of the various programs. Actual implementation of the Plan will occur over the next eight years, so costs will be variable. Costs for the State as a whole will be expressed, but are not estimated down to the local government level. The RESI analysis does not examine where funding for the programs will come from; it solely looks at how much money is needed for the programs. MDOT's project emission reduction levels which can be accomplished with available funds are indicated, as well as additional funding needed if the ultimate GHG reduction projects are to be implemented. The Plan provides positive net economic benefits. There may be some costs associated with specific programs, but as a whole the Plan has greater benefits to the State of Maryland.

2) Climate Change
   a) Climate scale modeling is conducted on an international level, not a state by state level. The final Plan includes edits to Chapter 2 focusing on climate change science and the immediate impacts the international models of climate change have on Maryland. The Governor's Climate Action Plan includes a report which directly adapts climate models to Maryland, called Global Warming and the Free State. This report is referred to in the Plan and the Plan describes how reduction strategies will affect climate change.

3) Job Creation and Benefits
   a) Working directly with RESI, MDE has facilitated further analysis of potential job and economic development benefits. The final economic analysis has been updated within the Plan as well as Chapter 7.

4) GHG Reduction Strategies
   a) Recycling-1
      i) There are already State mandated recycling goals which were not created specifically for GHG reductions. Although recycling may by itself have a negative economic impact in some areas of the State, the law requires that the overall plan with all of the programs included to have a positive economic benefit to the State. The Plan is clearly economically beneficial to the State of Maryland.

ii) The Plan is not required to identify funding sources for any unfunded programs recommended to reduce GHG emissions. The programs within the Plan are proposed tools to use to reduce GHG emissions, but are not automatically implemented with the finalization of the Plan.

b) Land Use-1
   i) Under the Plan, MDP and sister agencies will investigate the possibility of a local or regional collaboration to perform a Vehicle Miles Traveled (VMT) Fee Pilot Project Study in Maryland. In addition, MDP and sister agencies will investigate the feasibility of implementing Rule 9510 of the San Joaquin Valley Air Pollution Control District in Maryland, which requires mitigation for air emissions associated with development projects, including those from VMT. MDP is not requiring a fee to be charged for VMTs as a part of the Plan. We recognize that such a fee is objected to, but the fee is not a commitment at this time, only a potential source of funding.
   ii) MDP understands the concerns in regard to impacts on rural areas and on local governments. Any policies developed will include the opportunity for input by local governments and counties. Making a difference now, rather than later, is important to prevent increases in greenhouse gas emissions by promoting efficient development and land use. The longer efforts to reduce greenhouse gases are stalled, the more expensive and difficult achieving reductions becomes.
   iii) The proposed VMT Fee Pilot Project study in Maryland is an idea put forward as a way to reduce greenhouse gas emissions, but the state understands that there might be negative issues with this program. If this program were to be implemented, it would be a partnership with an interested local or regional government, and would be a pilot to study both negative and positive outcomes.

c) Land Use-2
   i) This Plan is an idea and guide on how to reach the goals and how to implement mechanisms for reductions. Regulations are implementation mechanisms that can possibly be put in place to reduce greenhouse gas emissions but are not part of the Plan itself. The state has already asked for other mechanisms rather than regulations, to implement policies.
   ii) MDE staff has been coordinating with local, regional, and state agencies throughout the drafting of the Plan. Coordination with various agencies has occurred through a number of meetings. Individual meeting with local governments have also occurred when requested. Some of the groups present and active in the planning process have been Maryland Department of Transportation, the Baltimore Metropolitan Council, the Washington Metropolitan Area Transit Authority, Maryland Association of Counties, as well as individual counties and specific environmental groups.

5) Adaptation Strategies
   a) Chapter 8 Adaptation is an update of currently occurring programs at different state agencies. Chapter 6 focuses on the programs that need to change to reduce greenhouse gases (e.g., mitigation), and which comments on costs can be addressed. Chapter 8 is just an update on climate change adaptation that the State of Maryland is already

working on. Since adaptation and mitigation go hand-in-hand, a chapter in the GGRP is dedicated to adaptation, to show that mitigation is not enough. Contractual assistance was not made available to examine the adaptation programs outlined in Chapter 8. The Plan itself does not address the adaptation strategies of the various programs. Current laws do not require net benefits of the adaptation programs to be analyzed or provided.

b) State governments, such as the Department of Natural Resources, are already working with local governments on their adaptation strategies, specifically with local planning departments to incorporate climate change adaptation into their development plans. Some strategies still need to be developed, particularly the implementation of these strategies, and therefore they are left deliberately vague.

c) Adaptation strategies are incorporated into so many different aspects of state and local government planning, that it is hard to address each topic here. For that reason, the state of Maryland published two reports directly about adaptation:
   i) http://ian.umces.edu/press/reports/publication/299/comprehensive_strategy_for_reducing_maryland_s_vulnerability_to_climate_change_phase_ii_building_societal_economic_and_ecological_resilience_2011-01-24/
   ii) http://ian.umces.edu/press/reports/publication/197/comprehensive_strategy_for_reducing_maryland_s_vulnerability_to_climate_change_phase_1_sea_level_rise_and_coastal_storms_2008-09-12/

d) The adaptation strategies contained in Chapter 8 are currently being used to guide and prioritize state-level action. While local governments clearly have a role in responding to the impacts of climate change, there are no specific mandates contained within Chapter 8 for action at the local level. That said, through the implementation of adaptation efforts at the state-level, the State of Maryland is hoping to catalyze similar action at the local level. Additionally, through some of the various state programs and adaptation initiatives that are underway, there are some opportunities for local government funding and technical assistance for climate change planning efforts. One such program is DNR's Coast-Smart Communities Initiative which provides financial and technical assistance to local governments looking to reduce their vulnerability to the effects of coastal hazards and sea level rise through planning and permitting activities. Grants of up to $75,000, drawn from the state's federal Coastal Zone Management Act funds, are awarded on an annual basis and may be renewed for up to three additional years. For more information, visit http://www.dnr.maryland.gov/coastsmart/.

Comment: Maryland Association of Realtors

August 17, 2012

To Whom it May Concern:

The Maryland Association of REALTORS® (MAR) offers the following comments regarding Maryland's Plan to Reduce Greenhouse Gas Emissions (hereinafter referred to as the "Plan").

As a trade association representing 22,000 REALTORS® throughout Maryland, our comments are focused on the Plan's provisions affecting housing and growth. While MAR recognizes that there are some benefits to compact development, MAR is concerned that some of the measures contemplated by the Plan will result in significant growth restrictions. In fact, numerous policies (Chesapeake Bay Nitrogen Reduction Act of 2009, Plan Maryland, WIP plans, and the Sustainable Growth and Agricultural Preservation Act of 2012) have already been implemented in the last 2-3 years that will result in more compact development. And yet, before the impact of these policies can be quantified, further growth restrictions are now being considered.

Additionally, MAR is concerned that some of the economic benefits of compact development are overstated because it is not clear that the Plan's analysis includes the true costs of redevelopment.

And finally, MAR is concerned that the overall effort to reduce Greenhouse Gas (GHG) emissions does not adequately factor in market changes that also achieve reductions in GHG like the increasing use of natural gas instead of coal in energy production.

Transportation 13: GHG Emissions Impacts from Major New Projects and Plans One of the implementation recommendations in this section of the plan recommends that a GHG analysis be conducted in conjunction with any major capital project. In fact, the Plan suggests an analysis be required anytime an Environmental Assessment is conducted. MAR is concerned that such an analysis should not be used as a required step in receiving approval. Already major development projects are delayed for years as opponents litigate every step of the approval process. Significant litigation occurs as a result of many environmental assessments, and it would be counterproductive to further empower such delay tactics. MAR believes if such analysis is conducted it should be informational only with clear time restrictions so the cost of development is not inflated.

Land Use 1: Smart Growth and Land Use/Location Efficiency
MAR strongly opposes emission caps for transportation implemented through development and land-use decisions. Over the last 15 years, Maryland has passed numerous growth laws that will have the effect of creating more compact development which is closer to population and job centers. The original Smart Growth Law of 1997, the Brownfield's Law, the Critical Areas and Coastal Bays Act of 2008, the Chesapeake Bay Nitrogen Reduction Act of 2009, the Planning Visions Act of 2009, the Smart Growth Indicators Act of 2009, the Smart Growth Act of 2009, PlanMaryland, WIP Plans and Offsets, the Sustainable Growth and Agricultural

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Preservation Act of 2012 are examples of many but not all of the laws and regulations that will result in more compact development in Maryland. Many of these laws are so new that it is impossible to quantify their impacts on growth. However, adding m1other step in the development process by requiring compliance with GHG goals will surely create a hurdle for development projects and will result in diminishing Maryland's capacity to meet future growth needs. While reduction of GHG is an important societal goal, so is the protection and creation of affordable housing. Until the impacts of WIP Plan offsets, PlanMaryland and the Sustainable Growth Act are quantified, it would be irresponsible to impose additional mandates to further a goal that Maryland may already be on the path to meet.

Land Use 2: GHG Targets for Local Government's Transportation and Land Use Planning

MAR shares the same concerns with the previous section over this section's recommendation that Maryland consider regional transportation caps similar to California's legislation, Senate Bill375. Without knowing the impact of all of the other legislation that will impact more compact development in Maryland, it would be at best premature to consider regional GHG emission caps linked to development, and, at worst, it would reduce Maryland's growth capacity and affordable housing.

Land Use 3: Funding Mechanisms for Smart Growth

This section of the plan calls for consideration of new funding measures. In so doing, this section lends credibility to MAR's concern about whether the costs of redevelopment are adequately reflected in the "cost savings" touted by the report for more compact development. MAR is concerned that local government is already unable to pay for WIP compliance and offsets, and that a recommendation to identify additional resources on top of WIP compliance will result in even more significant costs bom by property owners.

Land-Use 4: GHG Benefits from Priority Funding Areas or Other Growth Boundaries

Fundamentally, MAR believes that growth should remain a local government function, and MAR is concerned with any potential calls for strengthening PlanMaryland's ability to control growth boundaries. MAR believes that Maryland has adequately provided direction to local government over the last three years in terms of where and how growth can occur.

Economic Impact

MAR has a number of concerns and questions regarding the economic impact of the Plan. When the Plan cites economic data showing the savings that result when roads and other infrastructure are not extended to undeveloped areas, does it calculate the significant costs that can be associated with redevelopment? Government costs such as increased sewer capacity and upgrades, road improvements, parking garages and increasing school capacity should be part of that calculation. Interestingly, the Plan cites some data showing the average cost of building a home will be $16,000 cheaper under a more compact development scheme while acknowledging

in almost the same paragraph that

high density development will also lead to increased "residential property values." Land acquisition is clearly an expensive part of home building, and it is unclear whether the $16,000 savings cited in the Plan also accounts for the increased land acquisition costs.

Additionally, as other policies such as WlP plans and the Sustainable Growth and Agricultural Preservation Act take effect currently buildable lots will be off limits to development which will certainly increase the price of the remaining lots that can be built out. When costs such as these rise too much, the development that often occurs is targeted to higher income purchasers who can afford it. This is particularly true of many mixed-use developments that need a higher average disposable income to justify the creation of retail establishments adjoining the housing.

MAR is also concerned that the financial impact does not include another important factor for redevelopment: community opposition. Many redevelopment projects can take years to move from planning to construction because most communities react badly to development that they fear will bring more traffic congestion, loss of open space, and overcrowded schools. The Adequate Public Facility Ordinances (APFO) that the Plan cites as potential roadblocks to smart growth did not occur by chance. There was significant public support for those laws in response to increased development. If local governments do not recover significant cost savings from denser development, it is unlikely that local government will be able to pay for the infrastructure costs to mitigate community concerns. Local government is already struggling to figure out how to pay for WlP compliance. Expecting that local government will now have the resources for the costs that will make redevelopment feasible appears unrealistic.

Even worse, if removing APFO laws becomes politically impossible, any further restriction of growth areas outside of population centers can easily stop all growth. As more rural lots are removed from the development envelope and APFO ordinances shut down development in more suburban and urban areas, there will be no growth opportunities.

MAR is also concerned about the basis for other cost savings cited in the Plan. For example, the Plan cites the cost savings from compact development that result from increased use of mass transportation. One study cited in the Plan from Montgomery County estimated a 35-40% monthly transportation savings for areas along the Metro Redline, compared with areas not nearby. While those savings are significant, there are many more locations too far removed from Metro to make such savings available to most residents. Moreover, the start-up costs of extending similar mass transit options can be overwhelming both financially and politically.

Market Factors Affecting GHG

Recent data indicate that the release of carbon dioxide from U.S. sources is lower now than at any other point in the last 20 years. Much of that reduction is thought to result from the utility industry substituting natural gas for coal as an energy source. That substitution resulted because the market for natural gas became much more attractive to utilities. Given that the reduction in GHG is measurable, MAR wonders what other market forces are

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already at work that should also be part of the calculation used to measure attainment of GHG reductions in Maryland.

Finally, MAR understands the interest in reducing GHG through encouraging and mandating more compact development. However, MAR believes that Maryland has already passed numerous policies to achieve that goal, and fears that the land use provisions in this Plan will only hurt Maryland's ability to meet future growth demands and housing affordability.

Sincerely,

William Castelli

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V.P of Government Affairs

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Response:

5) Transportation 13
   a) MDOT is only requiring greenhouse gas (GHG) emissions to be evaluated, on a case by case basis, in environmental studies for large transportation projects in the Plan. It will not require counties to do so. The Plan outlines several potential strategies under the Transportation – 13 Program, but does not immediately put these strategies into effect. These potential strategies are tools that could possibly be used to reduce GHG emissions in the transportation sector. The National Environmental Planning Act already requires environmental studies to be conducted on large projects. Adding a GHG emissions evaluation to these environmental studies would not significantly increase the costs or time of the evaluation. This additional work could possibly result in changes that increase the cost of the project and/or time to construct transportation projects but will not target urban areas exclusively; both rural and urban areas will be equally impacted. As far as mitigation for GHG emissions, this is currently not required. The Plan does not require mitigation, and MDOT has not determined if mitigation would even occur at all.
   b) The state will continue to pursue its regulation to establish long range GHG targets for transportation planning (COMAR 26.11.37), but will not require any additional work on the part of local governments in light of the federal conformity process. This is a separate process from the development of the GGRA Plan.

6) Land Use 1 - 4
   a) MDP understands that there are existing programs and policies in Maryland that strive to promote Smart Growth practices. The Plan includes a goal of 75% compact development that it strives to achieve. Since this goal is not a requirement of the plan, just a target to aim for, it will be used to direct the state on whether additional or different programs and policies are needed from the ones already in place.
   b) The Plan itself does not impose any mandates upon the state of Maryland. This Plan is an idea and guide on how to reach the goals and how to implement mechanisms for reductions. Regulations are implementation mechanisms that can possibly be put in place to reduce greenhouse gas emissions but are not part of the Plan itself. The state has already asked for other mechanisms rather than regulations, to implement policies.
   c) The state will continue to work with interested parties on implementation, and as required by the law, we will complete a 2015 report about what's working, what's not working, and what we need to change. Although no comments will be accepted on the final plan, the plan itself and implementation of programs will be a continuing process. Progress in achieving goals laid out in the Plan will be tracked between now and 2020 and this ongoing review will inform any changes to programs and policies.
   d) MDP understands the concerns in regard to impacts on rural areas and on local governments. Any policies developed will include the opportunity for input by local governments and counties. Making a difference now, rather than later, is important to prevent increases in greenhouse gas emissions by promoting efficient development and land use. The longer efforts to reduce greenhouse gases are stalled, the more expensive and difficult achieving reductions becomes.
   e) The state of Maryland recognizes the need for affordable housing. Any proposed policies will work to address affordable housing and Maryland's growth capacity with the appropriate stakeholders.
   f) The updated and edited RESI analysis shows an overall net job creation and economic benefit. Both job loss and increased costs were included in the analysis, but the net outcome was still job creation and benefits. While some specific programs will have benefits and some will have costs, the Plan must show a net economic benefit of all programs. This net benefit is described in the updated final Plan. The Plan is not required to identify funding sources for any unfunded programs recommended to reduce GHG emissions. The programs within the Plan are proposed tools to use to reduce GHG emissions, but are not automatically implemented with the finalization of the Plan. Maryland state agencies will work with local governments and counties to determine how to implement programs while limiting costs.

3) PlanMaryland
   a) PlanMaryland is a separate program within the state which has already been approved by the Governor and could result in proposals for procedural, legislative or regulatory change to meet the goals of PlanMaryland. PlanMaryland is referenced in the Greenhouse Gas Reduction Plan, since future PlanMaryland implementation mechanisms might prevent future greenhouse gas emissions.

4) Economic Impact
    a) RESI worked with the responsible agencies for implementing each policy to obtain cost data. The data in the model reflects best estimates given the available information at the time. The responsible agency provided the all the expected costs as a result of a program.
    b) In the economic analysis, the total cost of redevelopment using both the Business As Usual model and the Greenhouse Gas Reduction strategy is taken and the GGR strategy ends out being less expensive. Regardless of what model you use, sprawl or more compact development, you will have increased sewer capacity, upgrades, and road improvements, etc. But the costs of sewer capacity, upgrades, and road improvements, are $16,000 less expensive under the more compact development scheme.
    c) Community Opposition
        i) The Plan is not required to identify funding sources for any unfunded programs recommended to reduce GHG emissions. The programs within the Plan are proposed tools to use to reduce GHG emissions, but are not automatically implemented with the finalization of the Plan. The Plan provides positive net economic benefits. There may be some costs associated with specific programs, but as a whole the Plan has greater benefits to State of Maryland. The Plan does not start the implementation process. Regulations are implementation mechanisms that can possibly be put in place to reduce greenhouse gas emissions but are not part of the Plan itself. The State has already asked for other mechanisms rather than regulations, to implement policies. The State recognizes that local governments already have large economic burdens.
    d) Mass transportation
        i) It is true that the rural areas of counties are at a disadvantage concerning mass transportation. The Plan does show a net benefit from mass transportation programs to the entire State of Maryland. This benefit does not distinguish between urban and rural communities. The State receives a benefit, but the model does not analyze the benefits for individual counties. The State recognizes that it would not be advisable to extend mass transit to all counties.

Comment: Maryland Conservation Council

Maryland Conservation Council

Protecting Maryland's Natural Heritage Since 1969

Comments on, and Suggestions for the Maryland Department of the Environment's 2011 GGRA Draft Plan

The Greenhouse Gas Reduction Act Draft Plan is a well intentioned attempt to correct what is perhaps the most serious global environmental threat facing the planet: climate change caused by human greenhouse gas (GHG) production. The Draft Plan presents 65 programs intended to reduce Maryland's GHG emissions by 25% by the year 2020. Some of these programs promise to be effective, but the draft plan does not acknowledge that this effort is just the beginning. Thus, one of the shortcomings of the Draft Plan is that it does not mention the more stringent policies necessary for ending GHG emissions and their deleterious effect on global climate change in a timely way. This might lead the average reader to think that a 25% reduction is all that is needed. A much more thorough picture of the climate change threat and the measures required for its elimination is laid out in a five volume work, *America's Climate Choices* (ACC) (references 1-5) from the National Research Council (NRC), the research arm of the National Academies of Science (NAS). The NAS is one of the world's most prestigious scientific bodies, founded during the Civil War by Abraham Lincoln to advise the government on scientific matters (www.nationalacademies.org). Another major work from the NAS/NRC, which is very relevant to this discussion, is *America's Energy Future* (AEF) (references 6-9).

Prior to anthropogenic emissions, atmospheric CO_2 concentration was about 280 ppm (parts per million). One of the findings in ACC is that to hold atmospheric carbon dioxide levels to 450 ppm, almost all (>80%) of emissions as of 2000 must end by 2050. Even though 450 ppm carbon dioxide seems to be the lowest atmospheric concentration that is practicable to achieve, this concentration may still have severe effects on the earth's climate; and even if that goal is achieved, the GHG's already in the atmosphere will continue to alter global climate. ACC also states that there is no clear indication about how fast climate change will occur, making it prudent to end emissions as quickly as practicable. Ultimately *all* GHG emissions must stop, because over the very long-term, even small emissions will accumulate to damaging levels, especially the atmospherically more stable gases such as CO_2 .

> **The Final Plan should state clearly that a 25% reduction is just an initial target and that reduction must reach at least 80% by 2050 and 100% as quickly as practicable.**

Wind is known as an “intermittent” source of energy because it is unpredictable. The most ambitious study of the integration of wind power into the American electricity mix is *Wind Power in America’s Future* (10), a study focused on the goal of providing 20% of America’s *electricity* (not total energy) by 2030. It states clearly (pages 11, 154-155) that fossil fuel backup will be necessary to supply electricity when wind fails, and that 20% is as large a proportion of electricity demand that intermittent sources can supply with present technology, even with backup. Similar statements are made throughout references 1-9. The road to GHG-free energy is not as simple as renewables advocates imply.

The Final Plan should mention that industrial-scale renewables cannot be utilized without fossil fuel backup.

We believe that the Draft Plan has several other shortcomings. Even though ACC and AEF include nuclear power as a critical method for generating electricity without making carbon dioxide (1, page 68; 2, page 65; 6 pages 114, Chapter 8), nuclear power is ignored in the GHG Emissions Control Act, and also is not mentioned in this Draft Plan . The Governor, commendably, supports the construction of the new reactor at Calvert Cliffs.

The Final Plan should mention the benefits in reducing carbon dioxide emissions that nuclear power will provide; and that the Calvert Cliffs 3 project, if compared to coal plants of the same capacity, will offset about 12 million tons of carbon dioxide per year; six million if compared to natural gas.

The Draft Plan is somewhat misleading about the economic benefits available from “green” energy programs (jobs, salaries, and business revenues) because it states only the gross, not the net, effects. Once again ACC states that the net positive economic impacts of “green” technologies are probably going to be small because business activity will be lost as well as created (2, page 183). For example, when a portion of the fossil fuel industry's business is replaced by renewable energy, jobs and income will be lost in the fossil fuel industry. Estimating the number of jobs lost is very difficult, but the statements about economic impact should mention what will inevitably happen.

The Final Plan should mention that the employment and other economic figures given are gross numbers and that they are likely to be reduced by losses in other business sectors.

To the biologist, a very disturbing proposal in the Draft Plan (repeating the MDCCC’s 2008 report) is the use of massive amounts of biological material to co-fire boilers. The MDCCC’s report calls for the use of forest slash for this purpose. The clear cutting of forests is bad enough from the standpoint of impacts on forest stability and biological diversity; removing material that will help maintain the fertility of the degraded forest adds another insult. Despite the claims of professional forest managers that their practices increase the health of forests, one must consider that these practices have been used for only about 100 years, yet we know that there have been trees for about 385,000,000 years. Thus, natural, un-managed forests have needed no help in maintaining their viability; this new assault on them is likely to diminish their biological sustainability. Removing the slash is almost certain to lead to shorter rotation times in

forest management. In addition, the effects of the recent drought on crops should be warning enough that using agricultural products to make energy is inadvisable, especially because "energy" crops will compete with food crops for land. Less well understood is the fact that burning biological material produces and releases halogenated organic compounds (11), some of which, like dioxins, are presumed toxic. As an illustration of how utterly ineffective this activity will be in meeting our electricity needs (let alone total energy demand), it would require biomass grown on over 2,500 square miles of land (calculated using average crop yields) to produce as much electricity as a large nuclear power plant occupying only about1/2 square mile.

> **The use of forest slash should be eliminated from the Final Plan out of concern for the sustainability of the forest itself and out of mercy for the creatures that live in it. And the use of plant materials (like switch grass) grown specifically to co-fire boilers should be eliminated from the Final Plan to acknowledge that the climate of the planet is becoming increasingly unpredictable, and also out of mercy for creatures that will no longer be able to thrive in what will become an industrial monoculture.**

We repeat that there is an urgent need to end the emission of GHGs. The literature on this topic is replete, however, with technological advances that must be made before many of the candidate renewable technologies become commercially viable. Large scale implementation of wind and solar power require the development of a “smart grid” and a method to store large quantities of electrical energy, in addition to reduction in overnight construction costs. These advances in technology are usually called “breakthroughs,” meaning that their successful effectuation is not assured. Although increases in energy efficiency are highly desirable, much remains to be developed before efficiency can reach its maximum potential. For instance, in considering the energy efficiency of buildings, it must be remembered that the working life of existing homes and commercial structures is close to a century; retrofitting is slow and very expensive. The major reports from the NAS and DOE (references 1-4,6-10) repeatedly state that the intermittent renewables (wind and solar power) cannot be implemented on a larger scale than they are today without the use of fast-responding natural gas combustion turbines. This fact alone limits their capability of ending GHG emissions.

A recent document from a group supporting renewable energy (12) warns that three major components of the renewable energy strategy (RGGI. EmPower Maryland, and the RPS) are not going to reduce GHG emissions from electricity production by 2020 by as much as had been anticipated. Keep in mind the RPS applies to only 8% of CO_2 emissions from all human activity because electricity production is responsible for only 40% of our CO_2 emissions, and the RPS *might* eliminate only 20% of that 40%. In stark contrast, the nuclear reactors built 40 years ago are reliable, economical, and safe. Newer designs should be even more so, but this is not necessary for reactors to be able to supply all of our electricity; witness the case of France. To supply our electricity needs, industrial-scale renewables require both unassured critical technological advances and face significant socio-economic hurdles, whereas nuclear power faces only the latter. An understanding of some elementary chemistry and physics leads to the conclusion that reactor designs now in development can supply heat for buildings and for industrial processes. Beyond that, it is certain that these new

designs could be used to make methane, which is an effective liquid transportation fuel, thereby eliminating the urgency to develop electric vehicles which, although very desirable, have many hurdles to overcome. Thus nuclear power could effectively supply ALL of our energy needs without the production of GHG.

Had the anti-nuclear movement not succeeded in keeping the industry crippled for the past 30 years, there would have been no economic or rational reason to have built fossil fuel plants, especially not coal plants, since about 1980. The world's existing nuclear reactors have lessened the emission of carbon dioxide by about 18% of what it would have been without them; had more been built there would be much less carbon dioxide in the atmosphere today. Perhaps the heat waves and hurricanes that have killed tens of thousands of people would not have been as severe. It is frustrating that the technology best suited to eliminate ALL GHG emissions has been totally overlooked in this document.

> **The Final Plan should propose the increase of the proportion of carbon dioxide-free electricity sales in Maryland to 30% of total sales, and stipulate that the added 10% come from either new reactors or uprates of existing reactors. The amended law should be called a Clean Energy Portfolio Standard rather than an RPS.**

We thank the MDE for the opportunity to comment on the GGRA Draft Plan.

Sincerely,
Norman D. Meadow, Ph.D.

First Vice President, Maryland Conservation Council

Principal Research Scientist, Retired
Department of Biology
The Johns Hopkins University

2304 South Road, Baltimore, MD 21209
410-664-7196

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10. *Wind Power in America's Future: 20% Wind Energy by 2030*, 2008, US DOE, Dover Publications, Mineola, N.Y.

11, Gribble, G.W., 2004, *American Scientist,* 92:342

12. http://www.chesapeakeclimate.org/take-action/maryland/tell-gov-omalley-strengthen-mds-global-warming-plan

Response:

1) The updated science chapter of the Plan (Chapter 2) adequately addresses the need for aggressive CO2 reductions for the Plan to be successful. Maryland state law also requires a 2015 status report in which the General Assembly reviews the Plan. At this time the goal may or may not be revised based on changes in science and management.

2) Wind Power
   a) There have been numerous studies on integration of wind power into the electricity grid. In general, the integration challenges and cost are minimal until a substantial plurality of peak demand is met through intermitted resources. Maryland is located in PJM, which has many beneficial characteristics with respect to wind power integration. PJM is geographically expansive, contains over 60 million customers, and dispatches over 160,000 MW of installed capacity. Additionally, PJM dispatches energy in 5 minute increments, requires wind producers to forecast sub-hourly output, and runs a competitive frequency regulation market to handle sub-5 minute fluctuations. As a result, variations in the output of a single wind turbine or project are routinely handled through standard business practices and do not require incremental "firming" capacity.

3) Nuclear power
   a) The state of Maryland has a deregulated energy market. Therefore, MDE and the State have very limited control to order new generation. Currently, the Public Service Commission can only order new generation if it deems there is a sufficient risk to

reliability, but it also must strive to minimize costs to ratepayers. Nuclear facilities are unlikely to be a selected technology to meet reliability requirements given their size, lack of operational flexibility, and cost. In normal day-to-day circumstances, the State has no control over which energy generating facilities are constructed.

b) It is implicit that nuclear power does not have any carbon emissions. The Plan does not address that nuclear energy does not add carbon to the atmosphere. While Maryland recognizes that replacing fossil fuel power generation facilities with nuclear energy facilities will reduce greenhouse gas emissions, the state does not determine what facilities are built.

4) Maryland has an RPS which the Governor has currently implemented. RGGI, a cap and trade program, is also aimed at reducing carbon from the electricity sector.

5) Economics
   a) The Plan includes an updated RESI analysis based on agency provided and best available data. The analysis clearly describes the assumptions made, and the State recognizes that other studies available may come to different conclusions.
   b) The 2012 analysis provided by RESI relies on the REMI modeling software. This model is well accepted as being able to predict economic outcomes and more information can be found on the REMI website. www.remi.com
   c) The final Plan includes employment and economic figures that are net positive benefits, not gross values. Costs and losses in other business sectors are already included in the information provided. The appendices give more detailed data and will be available at a future date.

6) Forest Slash
   a) Clearcutting is a long proven silvicultural technique used to regenerate forests comprised of species requiring full sunlight to grow. Removing the mature overstory of a forest is a management technique practiced by the original inhabitants of North America for thousands of years, except that they used fire as their tool for removal. Some mature forests, but not all, do exhibit high diversity of physical structural and support species dependent upon that structural diversity. It is also important to recognize that a young regenerating forest is actually far more diverse in species richness than most fully mature forests, and young forests are actually becoming scarce in Maryland as more and more land is reserved from the working landscape. The many species of associated plants and wildlife species reliant upon the species diversity, density, and structural make-up of young forests are declining in parallel with the loss of young forests.
   b) The proposed plan does not specifically call for increasing clearcutting forests. In fact, the recommendations are based upon simply using the available wood already produced but not utilized by existing on-going activities. Utilizing a portion of forest slash generated during a timber harvest for fuel is one such example. Keep in mind that the economics of fuel wood do not, nor are they likely to, support the economic costs of harvesting a forest simply for its fuel value. In other words, because wood fuel is such a

low value forest product, its production will be simply a by-product of the timber harvests occurring for the higher value products.

c) Forest managers are often frustrated by their inability to reduce the density or remove unwanted species from their forests simply due to a lack of markets that would defray the high costs of those operations. A fuel market could create an opportunity to do so, and thus allow forest managers to enhance the outcomes of their management actions.
d) Removing slash from the forest also removes nutrients. Fortunately, the vast majority of soils in Maryland are highly resilient and the normal photosynthesis activity of the forest quickly recaptures and replenishes the minimal loss of nutrients. In cooperation with the Pinchot Institute for Conservation, the Maryland DNR Forest Service developed an extensive suite of "Best Management Practices" for use in planning and conducting forest harvests that will also utilize slash. A principal protocol of these BMPs includes retaining a significant portion of the slash on-site, albeit this is in consideration of wildlife habitat than from a concern of nutrient depletion.
e) Using forest slash has no impact at all on rotation lengths. The plan does not call for establishing monocultures as is suggested by the commenter. The recommendations remain specific to the opportunity for using wood, from both rural and urban sources, and make no mention of using crops. Envisioned is simply using the woody materials already generated through on-going existing activities but left unutilized (e.g., arborist trimmings). Also, the commenter assumes the energy produced would be electricity; however, the recommendations stress the opportunity present is to use our abundance of unutilized wood resources as an economical and environmental smart alternative to fossil fuels for meeting our thermal energy needs.

Comment: Maryland State Builders Association

MARYLAND STATE BUILDERS ASSOCIATION
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August 17, 2012

Mr. Tad Aburn, Director
Air and Radiation Management Administration
Maryland Department of the Environment
1800 Washington Blvd.
Baltimore, MD 21230

ATTN: climate@mde.state.md.us

Dear Mr. Aburn:

On behalf of the Maryland State Builders Association (MSBA), thank you for the opportunity to provide comments on the Maryland Department of Environment (MDE) 2011 Greenhouse Gas Emissions Reduction Act of 2009 (GRRA) Draft Plan. I understand that this draft Plan fulfills the law's requirement for the Department to submit a draft of the GGRA Plan to the Governor and General Assembly in advance of the final Plan and that the Plan must demonstrate that implementation will result in the creation of jobs and improvement in the state's economy.

MSBA strongly supports the goal of reducing greenhouse gas emissions and acknowledges the importance of reducing pollution from air sources as an important component of the Chesapeake Bay Cleanup effort. Generally, we are concerned about the probability of success of this reduction plan given the potential migration of emissions from neighboring states and other natural climate conditions. Of the 65 control measures that comprise the Plan, almost 20 have a direct or indirect impact on residential development based on our initial assessment of the draft Plan. The Building Sector measures outlined on pages 244-248 and the Land Use Sector measures outlined on pages 251-258 have the potential to greatly impact the volume, cost and location of future growth. In terms of building code actions, investing in retrofit of existing building and housing stocks using an existing program like Smart Codes, would be more cost effective in reducing emissions than spending more money on new construction. In Maryland, new buildings now make up approximately one percent of the building stock and must be thirty percent more energy efficient than a comparable building constructed to the 2006 code. We also believe that some of the proposed transportation actions will have an indirect impact on housing availability and affordability in rural areas. The job creation and economic benefits cited in these

sections do not appear to account for job losses and increased costs of development in urban, suburban or rural areas of the state.

In a healthy economic climate the construction industry represents almost 20 percent of the jobs and GDP in Maryland. We are keenly interested in the economic development component of the plan. We have reviewed RESI's estimates that the Plan, when fully implemented, will result in annual benefits that include the creation of approximately 36,000 jobs, $6.1 billion in additional economic output, and $2.1 billion in additional wages. However, our analysis of this preliminary economic study identified significant flaws to the concept of improving the State's economy. It appears that the analysis counts revenue received by business or government as a positive benefit without accounting for the impact of these regulations on business and consumers. The economic output and job creation may be grossly exaggerated by not reducing positive impact due to additional regulation.

Because of the importance of the economic assessment of implementing the GRRA Plan, we requested our national staff at the National Association of Homebuilders (NAHB) to review the 700 page report and provide an assessment of the conclusions reached by RESI. They pointed to a number of assumptions that may be flawed. I have attached their memorandum for your review. Confirming the accuracy of the economic analysis is critical to the future of the Plan and the viability of the residential development and construction industry.

On behalf of MSBA, I respectfully request that you consider withholding the measures outlined in the Building and Land Use Sector until the Advisory Committee has more time to gain consensus on these actions and other interested stakeholders can better understand the implications of these actions and the clear economic benefit or detriment that could result.

Thank you for your consideration of these comments.

Sincerely,

Eliot Powell
President

Attachment

Response:

1) Land Use Strategies
    a. MDP understands the concerns in regard to impacts on rural areas and on local governments. Any policies developed will include the opportunity for input by local governments and counties. Making a difference now, rather than later, is important to prevent increases in greenhouse gas emissions by promoting efficient development and land use. The longer efforts to reduce greenhouse gases are stalled, the more expensive and difficult achieving reductions becomes.

b. This Plan is an idea and guide on how to reach the goals and how to implement mechanisms for reductions. Regulations are implementation mechanisms that can possibly be put in place to reduce greenhouse gas emissions but are not part of the Plan itself. The state has already asked for other mechanisms rather than regulations, to implement policies.

2) Economics
    a. The updated and edited RESI analysis shows an overall net job creation and economic benefit. While some specific programs will have benefits and some will have costs, the Plan must show a positive net economic benefit and job creation of all programs when aggregated. This net benefit is described in the updated final Plan.
    b. The RESI analysis makes every effort to collect data when available and clearly expresses any assumptions that were used in the calculations. The analysis has been updated and is based on the agency provided and best available data. The assumptions used within the model do not exaggerate job creation or economic benefits from the programs in the Plan.

Commenter: MD National Capital Building Industry Association

Comments on 2011 GGRA Draft Plan

Since there are huge electricity losses during the generation, transmission and distribution of electricity, programs to reduce such losses would also reduce Greenhouse Gas Emissions. Programs such as the Combined Heat and Power should be a priority. The State should look at what else can be done to reduce these losses.

Ref. :MEA's "Maryland Energy Outlook 2010" which says, "Note that electricity losses (losses during the generation, transmission and distribution of electricity) are 31% of overall energy consumption…."

Maryland Energy Outlook 2010 link on webpage
http://energy.maryland.gov/energy101/index.html

Annette
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Response:

1) The state of Maryland has already enacted a utilities structure which provides incentives for lower energy consumption, also called decoupling. EmPOWER Maryland is the program currently in place that reduces energy consumption. The final Plan includes the EmPOWER Maryland program to reduce the electricity lost during transportation.

2) Currently, EmPOWER Maryland is examining ways to reduce energy losses at the distribution level to become more efficient. Technological changes to the distribution grid are also being examined to reduce energy losses.

Comment: National Association of Home Builders

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July 9, 2012

Tom Farasy
Terra Verde Communities, LLC
301.704.1495
www.terraverdecommunities.com

Re: Economic Impact Analysis for the Greenhouse Gas Emissions Reduction Act 2012.

Dear Tom,

This letter provides some comments on the above-referenced *Impact Analysis* produced by the Towson University Regional Economics Studies Institute (RESI), and dated December 2011.

The *Impact Analysis* is a 972 page report, including five appendices. A large proportion of the report is devoted to tables reproducing results from the IMPLAN model. IMPLAN is a well established and generally non-controversial technique for generating income, wage, and employment outputs from particular inputs; so, the primary questions about the Impact Analysis involve how the inputs are generated and what they really mean.

The *Impact Analysis* applies the IMPLAN model one at a time to each of 65 separate strategies for reducing greenhouse gas (GHG) emissions. The analysis produces two distinct types of impacts: those during the initial investment phase, and ongoing impacts during the operational phase of the strategy.

INVESTMENT PHASE IMPACTS

The investment phase impacts are one-time impacts that occur while a particular GHG strategy is being implemented. The inputs into IMPLAN are dollars spent by some entity in the process of implementing the strategy. In general, the report doesn't distinguish who is spending the money and doing the investing. It may be a government, business, or some other entity.

The report also fails to address how the money will be generated, and if it is reasonable to expect that it can be generated that way. Will it require governments to raise taxes or fees? Will businesses have to reduce investment in some other areas to spend it on GHG reductions? Either of these would lead to offsetting

reductions in employment that should be discussed if not estimated.
The report sidesteps some of the complications that arise in the investment phase by attempting to estimate not actual impacts associated with implementing a strategy, but impacts of a hypothetical $1 million investment. The reason given is uncertainties about implementation costs.

Because the investment phase impacts in the study are hypothetical in nature, with no pretense that they can or will actually be realized, the rest of these comments will focus on the second category of impacts estimated in the study: those that occur during the operation phase and are used to produce the aggregate figures, such as $6.1 billion in economic output or 36,000 jobs.

OPERATION PHASE IMPACTS

The operation phase impacts are described as ongoing, annual impacts that occur after a strategy has been fully implemented and is generating benefits. The inputs into IMPLAN vary depending on the strategy. In some cases, they are cost savings for households who use the savings to buy goods and services produced in Maryland. In other cases, the ongoing impacts are driven by revenue for particular types of businesses or government.

Summed over all GHG strategies, the operation phase impacts reported in Impact Analysis are roughly $6.1 billion in economic output, $2.1 billion in wages, and 36,000 jobs.

At first blush, it may seem peculiar that RESI resorts to a hypothetical case for the investment phase impacts, yet is able to estimate actual impacts during operation. However, it is possible that better information is available for the expected benefits of a strategy than the costs of implementing it. This needs to be evaluated on a case by case basis.

Unfortunately, in many cases, the assumptions adopted for the operation phase and input into IMPLAN are flawed, resulting in inflated output and jobs estimates that are not credible. This is particularly true of some strategies that are estimated to support a relatively large number of jobs. Below are some examples:

Strategy 3.2.9: Pricing Initiatives

> This strategy is a combination of existing programs and programs under development, including electronic toll collection, development of HOT lanes, congestion pricing, parking fees, and incentives for employers.
>
> It is estimated to support 7,635 jobs during its operation phase, 2,807 in public administration (i.e., government).
>
> The inputs into IMPLAN are a combination of savings to consumers who need

to buy less gasoline—due either to reduced vehicle miles traveled (VMT) or less time spent idling—and revenue for governments due to the increased fees. The largest input is $100.5 million in parking fee revenue for the City of Baltimore, which is responsible for a substantial share of the public sector jobs supported.

Spending less on gasoline would, in fact, leave more money in the pockets of Maryland consumers. Inputting this into IMPLAN produces reasonable estimates of jobs generated within the state in businesses supported by consumer spending (such as health services and retail trade).

However, requiring consumers to pay parking and VMT fees clearly leaves less money in their pockets to buy goods and services produced in Maryland. This negative effect could easily be input into the IMPLAN model to show the jobs destroyed in consumer-supported industries, but isn't.

The job creation reported in this section of the report is not credible, due to this inconsistent treatment of household income (i.e., counting it when the effect is positive, but ignoring it when negative).

Strategy 3.3.2: Creating Ecosystem Markets to Encourage GHG Emissions Reductions

This strategy consists of various requirements for mitigating for impacts during development, and trading pollution credits.

It is estimated to support 4,709 jobs during its operation phase, 1,851 in management of companies and enterprises.

The inputs into IMPLAN include estimated value of preserved environmental amenities, and the estimated or actual value of transactions in ecosystem markets. In most cases this is input directly into the "management of companies and enterprises" sector, resulting in jobs for accountants, managers, and supervisors of office workers. The largest inputs are an estimated $44 million value of nutrient credits traded per year, and $42 million average value of CO_2 credits sold per year by the state in cap-and-trade auctions.

In both cases, costs are imposed on particular businesses. Nutrient trading would involve primarily urban entities buying credits from agricultural businesses. The CO_2 auctions are primarily power companies transferring money to the state government. Because buying the credits imposes additional costs on particular businesses, it should reduce investment and employment in those businesses, but the report ignores these negative effects.

It is also unclear why 100 percent of the proceeds of every transaction would be used to buy additional accounting and managerial services. The report's explanation, "the expectation that a wide variety of business types will be motivated by market compliance to engage in best practices which benefit both

the environment and their bottom line," is not persuasive.

Strategy 3.3.3: Increasing Urban Trees to Capture Carbon

This is a program run by DNR in conjunction with state and local agencies that has averaged about 68,000 trees planted per year.

It is estimated to support 2,953 jobs during its operation phase, 1,276 in management of companies and enterprises.

The input into IMPLAN is roughly $4,000 per tree estimated annual contribution to retail trade input into the "management of companies and enterprises" sector.

It is logical that a program for buying and planting trees would support jobs in the state. However, $4,000 per tree seems unrealistically high. It follows from an unsubstantiated assumption that 600,000 urban trees account for 10.5 percent of all direct retail GDP in the state, which seems unlikely. It is also unclear why this is fed into "management of companies and enterprises" rather than into retail or wholesale trade, or "greenhouse, nursery, and floriculture production"—i.e., into businesses that normally sell and produce trees.

Strategy 3.3.8: Conservation of Agricultural Land for GHG Benefits

This is a single program, estimated to support 3,374 jobs during its operation phase, largely in industries supported by consumer spending (such as health services and retail trade).

The input into IMPLAN is roughly $490 million for the value of farmland preserved year, treated as savings to consumers, who then spend money on goods and services produced in the state.

The major premises of this section are faulty. First, preserving agricultural land is not a GHG strategy. In describing this section, the report states, "The benefits associated with the creation of protected lands and open space encourage the growth of natural wildlife habitats and reduce sediment and nutrient loss." But these are benefits from other types of preserved areas, not agricultural land. Agricultural land is not a natural wildlife habitat and is the largest source of sediment and nutrient pollutants. Nor are any of these environmental related in any obvious or direct way to GHG emissions.

Second, preserving agricultural land does not put money into the pockets of consumers, so it is not a valid input into this part of the IMPLAN model.

Strategy 3.3.9: Buy Local for GHG benefits

This strategy helps agricultural producers market their products to wholesalers within the state.

It is estimated to support 2,827 jobs during its operation phase, 1,386 in wholesale trade.

The input into IMPLAN is an additional $5 spent on average by every household in Maryland every other week for locally grown produce, input into wholesale trade businesses.

An important unanswered question is why encouraging wholesalers to buy from particular farms would cause consumers in Maryland to buy more produce? It is understandable that the program would cause wholesalers to buy a greater share of produce within the state and increase business for Maryland farmers, but why would this increase business volume for the wholesalers themselves? Without an explanation, the estimate of wholesale trade jobs supported in this section is not credible. GHG Economic Impact Analysis July 9, 2012 Page 5

In summary, the IMPLAN model is a standard and accepted tool for estimating the economic impacts of policies such as GHG reduction, but the model's output is only as good as the inputs fed into it, and there are problems with the inputs used in several sections of the *Impact Analysis.* The problems include counting revenue received by businesses or government as a positive benefit while ignoring obvious costs imposed on other businesses or consumers, assuming that a particular strategy puts extra money in the pockets of consumers when there is no reason to suspect this is the case, and inputting revenue into what appears to be the wrong industry without explanation. Due to the severity and magnitude of these problems, summary statistics reported in the analysis—such as the $6.1 billion in economic output and 36,000 jobs supported during the operation phase—lack credibility.

I hope you find these comments helpful. Please feel free to contact me if you have any questions about them, or if you need anything else.

Best regards,

Paul Emrath
Vice President
Survey and Housing Policy Research

Response:

1) Investment Phase Impacts
   a) The Plan is not required to identify funding sources for any unfunded programs recommended to reduce GHG emissions. The programs within the Plan are proposed tools to reduce GHG emissions, but are not automatically implemented with the finalization of the Plan.

2) Operation Phase Impacts
   a) Although the RESI analysis is not perfectly comprehensive, it clearly expresses the assumptions used in the calculations. The analysis has been updated and is based on the agency provided and best available data. The assumptions used within the model do not

exaggerate job creation or economic benefits from the programs in the Plan. The analysis is transparent, and the Plan is a living document which will continue to be updated as the plan moves forward to the implementation phase. The State will continue to work with interested parties on implementation, and as required by the law, the State will be doing a 2015 report about what is working, what is not working, and what needs to change.

b) RESI worked directly with State agencies to make certain the agencies were comfortable with assumptions made in the analysis.

Commenter: Susan Jacobson

From: Susan Jacobson <suejacobson2@gmail.com>
To: <bhug@mde.state.md.us>
Date: 5/8/2012 4:49 PM
Subject: GGRA Revisions Needed

Dear Governor Martin O' Malley and Secretary Robert Summers,

Thank you for all your leadership in recent years in fighting climate change in Maryland by promoting clean, renewable energy.

Last month, per the Greenhouse Gas Emissions Reduction Act of 2009, the Maryland Department of the Environment released a draft plan for reducing carbon pollution statewide by 25 percent by 2020. The plan lays out an admirable framework of 65 programs for reducing emissions, involving efforts from many state agencies.

However, the plan has serious shortcomings. It makes unrealistic assumptions about certain pollution cuts. It projects overly rosy timelines for achievements. And – in several instances – it just gets the facts wrong. For example, the plan assumes the state's clean electricity standard has the potential to reduce much more carbon pollution than is realistically possible.

By the end of 2012, MDE and each state agency responsible for implementing the plan must work together to ensure the final GGRA plan is complete with a clear path for implementing programs that will realistically achieve the General Assembly's mandate. All state agencies must be held accountable for this goal.

Cutting carbon pollution will provide great economic benefits to the state if implemented effectively. Maryland's leadership will show our country and the world that climate progress is achievable and brings with it substantial benefits.

Sincerely,

Susan Jacobson
8 Lodge Pl
Rockville, MD 20850

Response:

1) The final Plan has been revised to examine the true potential benefits of the programs expressed. The overlap analysis in the final Plan ensures that reduction numbers have not been the result of double counting, and has been updated accordingly. The SAIC analysis is also included in the final plan.

2) MDE has been working closely with the governor as well as other State agencies involved such as, MDoT, MEA, and MDP. The Governor's office is tracking implementation of the plan

through the Governor's Delivery Unit (GDU) (https://data.maryland.gov/goals/greenhouse-gases). The Governor has been directly involved in development of the Plan. He has made the Plan into a "stat" process for the state of Maryland, called ClimateSTAT. The Plan itself is a living document that will be changed and edited as the implementation process occurs.